REQUEST FOR REDESIGNATION AND MAINTENANCE PLAN FOR OZONE ATTAINMENT IN THE 8-HOUR OZONE MARGINAL NONATTAINMENT AREA

LaPorte County, Indiana

Developed By:
The Indiana Department of Environmental Management

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TABLE OF CONTENTS

1.0 INTRODUCTION.....1

1.1 Background.....1
1.2 Geographical Description.....2
1.3 Status of Air Quality.....2

2.0 REQUIREMENTS FOR REDESIGNATION.....2

2.1 General.....2
2.2 Ozone Monitoring.....2
2.3 Emission Inventory.....3
2.4 Modeling Demonstration.....3
2.5 Controls and Regulations.....3
2.6 Corrective Actions for Potential Future Violations of the Standard.....4

3.0 OZONE MONITORING.....4

3.1 Ozone Monitoring Network.....4
3.2 Ambient Ozone Monitoring Data.....6
3.3 Quality Assurance.....8
3.4 Continued Monitoring.....8

4.0 EMISSION INVENTORY.....8

4.1 Emission Trends.....8
4.2 Base Year Inventory.....12
4.3 Emission Projections.....13
4.4 Demonstration of Maintenance.....15
4.5 Permanent and Enforceable Emission Reductions.....15
4.6 Provisions for Future Updates.....15

5.0 TRANSPORTATION CONFORMITY BUDGETS.....16

5.1 On-Road Emissions Estimations.....16
5.2 Overview.....16
5.3 Best Available Data.....17
5.4 Analysis Years.....20
5.5 Emission Estimations.....20
5.6 Motor Vehicle Emission Budget.....20

6.0 CONTROL MEASURES AND REGULATIONS 21

6.1 Reasonably Available Control Technology (RACT) 21
6.2 Implementation of past SIP revisions 21
6.3 Nitrogen Oxides (NO_x) Rule 22
6.4 Measures Beyond Clean Air Act SIP Requirements 23
6.5 Controls to Remain in Effect 24
6.6 New Source Review Provisions 24

7.0 MODELING AND METEOROLOGY 24

7.1 Summary of Modeling Results for National Emission Control Strategies in Final Rulemakings 24
7.2 Temperature Analysis for LaPorte County 25
7.3 Summary of Meteorological Conditions 27

8.0 CORRECTIVE ACTIONS 28

8.1 Commitment to Revise Plan 28
8.2 Commitment for Contingency Measures 28
8.3 Contingency Measures 29

9.0 PUBLIC PARTICIPATION 30

10.0 CONCLUSIONS 30

FIGURES

Figure 3.1 LaPorte County Nonattainment Area 5

TABLES

Table 3.1 Monitoring Data for LaPorte County (Annual 4th High and 2003-2005 Design Values).. 6
Table 4.1 Comparison of 2004 Estimated and 2020 Projected Emission Estimates in Tons Per Summer Day, LaPorte County, Indiana 14
Table 5.1 Emission Estimations for On-Road Mobile Sources 20
Table 5.2 Mobile Vehicle Emission Budgets 20
Table 6.1 Trends in EGU Ozone Season NOx Emissions State-Wide in Indiana 22
Table 7.1 Modeling Results from U.S. EPA for the Clean Air Interstate Rule.. 25
Table 7.2 Analysis of Maximum Temperatures for LaPorte County (Percent Change from Maximum Temperature (^{o}F) Normals (1971-2000)) 26
Table 7.3 Comparison of Days with 90^{o} F and 8-Hour Ozone Exceedance Days 26

GRAPHS

Graph 3.1 2003-2005 Design Values for LaPorte County Nonattainment Area 7
Graph 3.2 Trends in Northwest Indiana 8-Hour Design Values 1997 through 2005 7
Graph 4.1 LaPorte County NO_x Points Source Emissions Trends 1996–2004 9
Graph 4.2 LaPorte County VOC Point Source Emissions Trends 1996–2004 9
Graph 4.3 NO_x Emissions from Northwest Indiana Electric Generating Units, 1999-2005 10
Graph 4.4 Statewide NO_x Emissions from Electric Generating Units 1999-2005 11
Graph 4.5 NO_x Emissions Trends, 1996-2004, All Sources in LaPorte County 11
Graph 4.6 VOC Emissions Trends, 1996-2004, All Sources in LaPorte County 12
Graph 4.7 Comparison of 2004 Estimated and 2010 and 2020 Projected NO_x Emissions for LaPorte County 13
Graph 4.8 Comparison of 2004 Estimated and 2010 and 2020 Projected VOC Emissions for LaPorte County 14
Graph 5.1 Age Distribution for MOBILE6 Vehicle-Type for Northwest Indiana (including LaPorte County Compared to National Default Values 18
Graph 5.2 VMT Fractions by MOBILE6 Vehicle-Types for LaPorte County 19
Graph 7.1 Comparison of Days with 90^{o} F and 8-Hour Ozone Exceedance Days 27

APPENDICES

A Aerometric Information Retrieval System (AIRS) Data
B Emissions Inventories
C 2010 and 2015 Projected Emissions Inventories
D Public Participation Documentation
E. Mobile Input/Output and Calculation Files, LaPorte County, Indiana
F. Summary of and Response to Comments Received

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REQUEST FOR REDESIGNATION AND MAINTENANCE PLAN FOR OZONE ATTAINMENT IN THE 8-HOUR OZONE MARGINAL NONATTAINMENT AREA

LAPORTE COUNTY, INDIANA

1.0 INTRODUCTION

This document supports Indiana's request that LaPorte County, in Northwest Indiana, be redesignated from nonattainment to attainment of the 8-hour ozone standard. This county has recorded three (3) years of complete, quality assured ambient air quality monitoring data for the years 2003 – 2005 demonstrating attainment with the 8-hour ozone standard.

Section 107 of the Clean Air Act (CAA) establishes specific requirements to be met in order for an area to be considered for redesignation including:

(a) A determination that the area has attained the 8-hour ozone standard.
(b) An approved State Implementation Plan (SIP) for the area under Section 110(k).
(c) A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements.
(d) A fully approved maintenance plan under Section 175(A).
(e) A determination that all Section 110 and Part D requirements have been met.

This document addresses each of these requirements, and provides additional information to support continued compliance with the 8-hour ozone standard.

1.1 Background

The Clean Air Act Amendments of 1990 (CAAA) required areas designated nonattainment for the National Ambient Air Quality Standard (NAAQS) for ozone to develop SIPs to expeditiously attain and maintain the standard. In 1997 the United States Environmental Protection Agency (U.S. EPA) revised the air quality standards for ozone replacing the 1979 one-hour standard with an 8-hour ozone standard set at 0.08 parts per million (ppm). The standard was challenged legally and upheld by the U.S. Supreme Court in February of 2001. The U.S. EPA designated areas under the 8-hour ozone standard on April 15, 2004 as attainment, nonattainment, or unclassifiable.

At the time of the 1990 CAAA, there were no monitors in LaPorte County. Since that time, a monitoring network has been developed that includes two monitoring sites in LaPorte County. On April 15, 2004, U.S. EPA designated LaPorte County nonattainment and classified the area as moderate under the 8-hour ozone standard. Later that year U.S. EPA reclassified the area to marginal based on an IDEM petition and the area was required to comply with the standard by June 15, 2007.

1.2 Geographical Description

LaPorte County is located in Northwestern Indiana and contains such cities as LaPorte and Michigan City and such towns as Kingsbury and Kingsford Heights. Porter County is to the west of LaPorte, Marshall and St. Joseph Counties are to the east and Pulaski County is to the south of LaPorte County. This area is depicted in Figure 3.1.

1.3 Status of Air Quality

Ozone monitoring data for the most recent three (3) years, 2003 through 2005, demonstrates that air quality has met the NAAQS for ozone in the nonattainment area. This fact, accompanied by the permanent and enforceable reductions in emission levels discussed in Section 4.0, justifies a redesignation to attainment for the subject area based on Section 107(d)(3)(E) of the CAAA.

2.0 REQUIREMENTS FOR REDESIGNATION

2.1 General

Section 110 and Part D of the CAAA list a number of requirements that must be met by nonattainment areas prior to consideration for redesignation to attainment. In addition, U.S. EPA has published detailed guidance in a document entitled *Procedures for Processing Requests to Redesignate Areas to Attainment*, issued September 4, 1992, to Regional Air Directors. This document is hereafter referred to as "Redesignation Guidance". This Request for Redesignation and Maintenance Plan is based on the Redesignation Guidance, supplemented with additional guidance received from staff of the Regulatory Development Section of U.S. EPA Region V.

2.2 Ozone Monitoring 107(d)(3)(E)(i)

1) A demonstration that the NAAQS for ozone, as published in 40 CFR 50.4, have been attained. Ozone monitoring data must show that violations of the ambient standard are no longer occurring.

2) Ambient monitoring data quality assured in accordance with 40 CFR 58.10, recorded in the U.S. EPA Air Quality System (AQS) database, and is available for public view.

3) A showing that the three-year average of the fourth highest values, based on data from all monitoring sites in the area or its affected downwind environs, are below 0.085 parts per million (ppm). This showing must rely on three (3) complete, consecutive calendar years of quality assured data.

4) A commitment that, once redesignated, the State will continue to operate an appropriate monitoring network to verify the maintenance of the attainment status.

2.3 Emission Inventory 107(d)(3)(E)(iii)

1) A comprehensive emission inventory of the precursors of ozone completed for the base year.

2) A projection of the emission inventory to a year at least 10 years following redesignation.

3) A demonstration that the projected level of emissions is sufficient to maintain the ozone standard.

4) A demonstration that improvement in air quality between the year violations occurred and attainment was achieved is based on permanent and enforceable emission reductions and not on temporary adverse economic conditions or unusually favorable meteorology.

5) Provisions for future annual updates of the inventory to enable tracking of the emission levels, including an annual emission statement from major sources.

2.4 Modeling Demonstration

While no modeling is required for redesignating ozone nonattainment areas, the Indiana Department of Environmental Management (IDEM) has evaluated the results of federal control-case modeling to ensure compliance with the standard will be maintained.

2.5 Controls and Regulations 107(d)(3)(E)(ii) & 107(d)(3)(E)(v)

1) A U.S. EPA-approved SIP control strategy that includes Reasonably Available Control Technology (RACT) requirements for existing stationary sources covered by Control Technology Guidelines (CTG) and non-CTG RACT for all major sources.

2) Evidence that control measures required in past ozone SIP revisions have been fully implemented.

3) Acceptable provisions to provide for new source review.

4) Assurances that existing controls will remain in effect after redesignation, unless the State demonstrates through photochemical modeling that the standard can be maintained without one (1) or more controls.

5) If appropriate, a commitment to adopt a requirement that all transportation plans conform with and are consistent with the SIP.

2.6 Corrective Actions for Potential Future Violations of the Standard

1) A commitment to submit a revised plan eight (8) years after redesignation.

2) A commitment to expeditiously enact and implement additional contingency control measures in response to exceeding specified predetermined levels (triggers) or in the event that future violations of the ambient standard occurs.

3) A list of potential contingency measures that would be implemented in such an event.

4) A list of VOC and NO_x sources potentially subject to future controls.

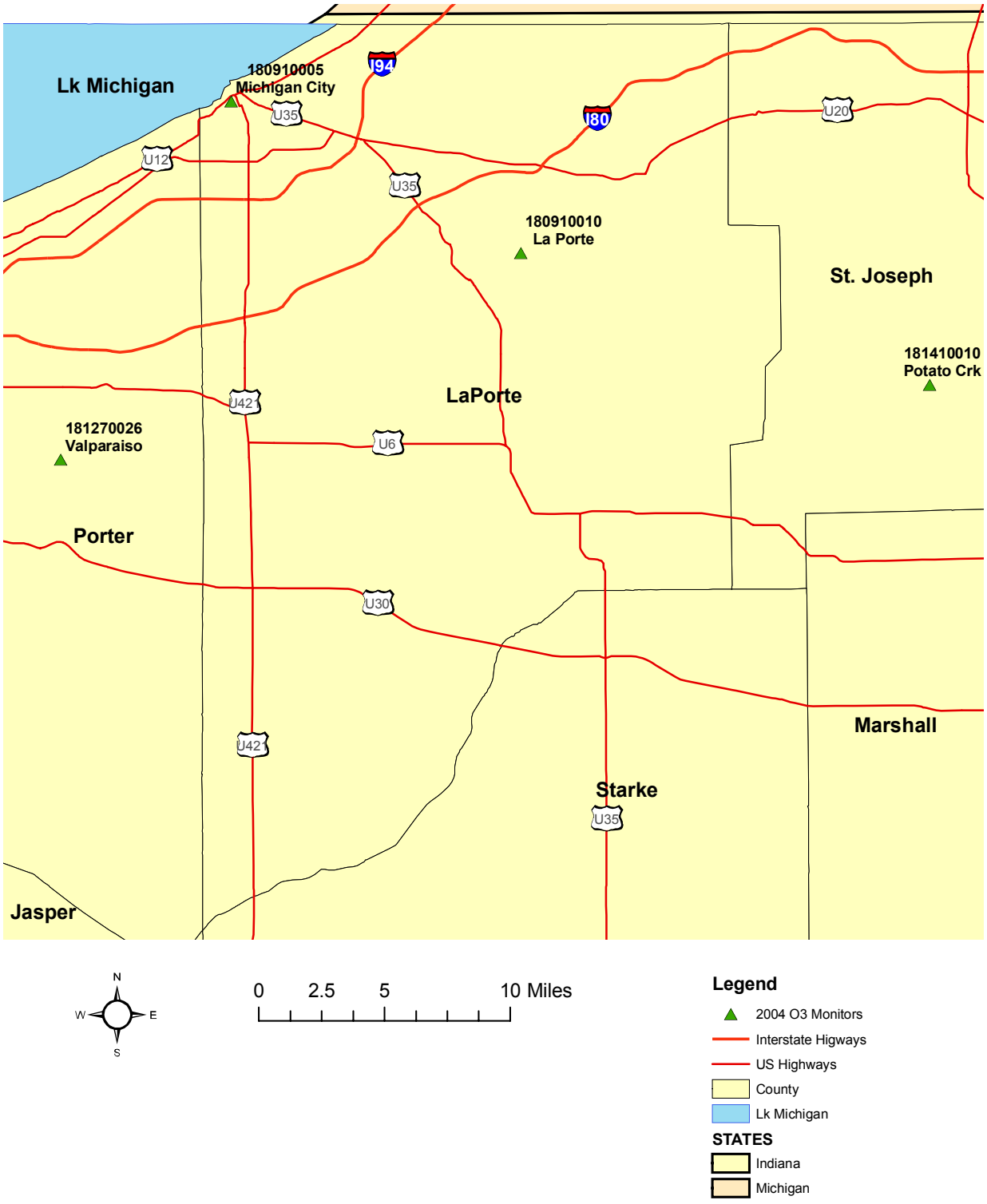
3.0 OZONE MONITORING

3.1 Ozone Monitoring Network

There are currently two (2) monitors measuring ozone concentrations in this nonattainment area, at Michigan City and LaPorte. These monitors are currently operated by IDEM's Office of Air Quality (OAQ). A listing of the monitors' four (4) highest readings from 2003 through 2005 are shown in Table 3.1 and were retrieved from the U.S. EPA's Air Quality System (AQS). The locations of the monitoring sites for this nonattainment area are shown on Figure 3.1.

Figure 3.1

LaPorte County Nonattainment Area



3.2 Ambient Ozone Monitoring Data

The following information is taken from U.S. EPA's "Guideline on Data Handling Conventions for the 8-Hour Ozone National Ambient Air Quality Standard (NAAQS),"EPA-454/R-98-017, December 1998.

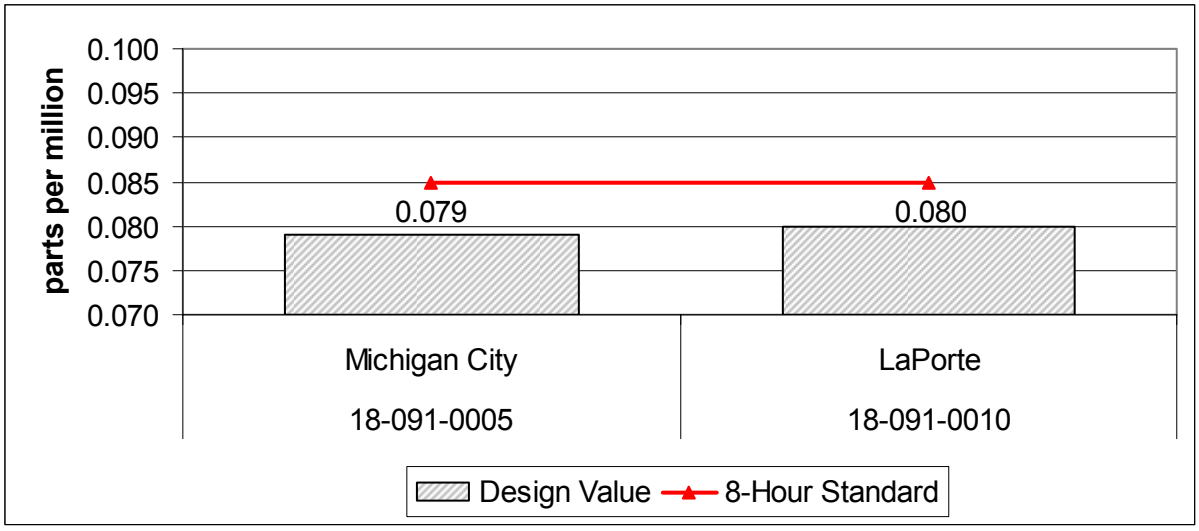
Three (3) complete years of ozone monitoring data are required to demonstrate attainment at a monitoring site. The 8-hour primary and secondary ozone ambient air quality standards are met at an ambient air quality monitoring site when the three (3) year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm. When this occurs, the site is said to be in attainment. Three (3) significant digits must be carried in the computations. Because the third decimal digit, in ppm, is rounded, 0.084 ppm is the largest concentration that is less than, or equal to 0.08 ppm. Therefore, for the purposes of this request, the 8-hour standard is considered to be 0.085 ppm. Values below 0.085 ppm meet the standard, values equal to, or greater than, 0.085 ppm exceed the standard. These data handling procedures are applied on an individual basis at each monitor in the area. An area is in compliance with the 8-hour ozone NAAQS if, and only if, this monitoring site meets the NAAQS. An individual site's three (3) year average of the annual fourth highest daily maximum 8-hour average ozone concentration is also called the site's *design value*. The air quality design value for the area is the highest design value among all sites in the area. Table 3.1 outlines the annual fourth highest values by site and the 2003 – 2005 design values for the two active monitoring sites in LaPorte County.

Table 3.1 Monitoring Data for LaPorte County (Annual 4th High and 2003-2005 Design Values)

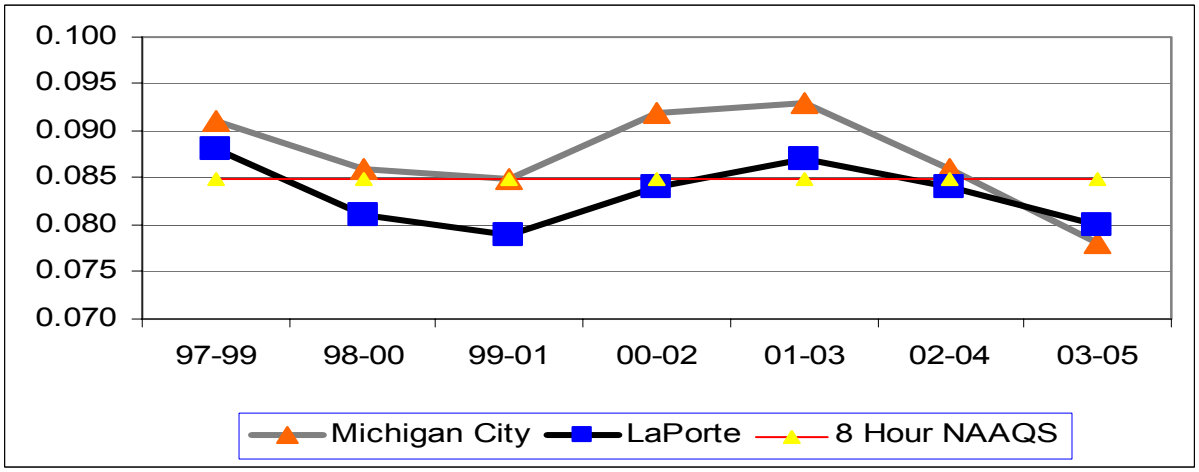
				Annual 4th High	2003-2005
SITE ID	COUNTY	ADDRESS	YEAR	8-HR (ppm)	AVERAGE (ppm)
18-091-0005	LaPorte	NIPSCO Gas Station, Michigan City	2003	0.082	
18-091-0005	LaPorte	NIPSCO Gas Station, Michigan City	2004	0.070	
18-091-0005	LaPorte	NIPSCO Gas Station, Michigan City	2005	0.084	**0.079**
18-091-0010	LaPorte	12011 E. Lincolnway, LaPorte IN	2003	0.084	
18-091-0010	LaPorte	12011 E. Lincolnway, LaPorte IN	2004	0.068	
18-091-0010	LaPorte	12011 E. Lincolnway, LaPorte IN	2005	0.089	**0.080**

The graph below visually demonstrates the design values for this nonattainment area.

Graph 3.1 2003-2005 Design Values for LaPorte County Nonattainment Area



Graph 3.2 Trends in Northwest Indiana 8-Hour Design Values 1997 through 2005



The above graph shows the trend in design values for LaPorte County over the past seven years. A comprehensive list of the sites' design values over this period is in Appendix A. The area's design values have recently trended downward as emissions have declined due to such programs as the Acid Rain program and cleaner automobiles and fuels on both regionally and locally. U.S. EPA's rule to control nitrogen oxides from specific source categories (40 CFR Parts 51, 72, 75 and 96, published on October 17, 1998 and referred to as the "NO_x SIP Call") has significantly reduced emissions from large electric generating units (EGUs), industrial boilers, and cement kilns. Indiana's NO_x Rule was adopted on June 6, 2001 (326 IAC 10-3 and 10-4). An analysis of meteorological conditions and monitoring values is included in Section 7.0 and supports the conclusion that attainment of the standard as of 2005 is not the result of unusually favorable meteorological conditions. It is expected that this downward trend will continue as the above programs continue and the U.S. EPA Clean Air Interstate Rule is implemented.

3.3 Quality Assurance

IDEM has quality assured all data shown in Appendix A in accordance with 40 CFR 58.10 and the Indiana Quality Assurance Manual. IDEM has recorded the data in the AQS database and, thus, the data are available to the public.

3.4 Continued Monitoring

Indiana commits to continue monitoring ozone levels at the sites indicated in Table 3.1 and Appendix A. IDEM will consult with U.S. EPA Region V staff prior to making changes to the existing monitoring network, should changes become necessary in the future. IDEM will continue to quality assure the monitoring data to meet the requirements of 40 CFR 58. Connection to a central station and updates to the IDEM website[1] will provide real time availability of the data and knowledge of any exceedances. IDEM will enter all data into AQS on a timely basis in accordance with federal guidelines.

4.0 EMISSION INVENTORY

U.S. EPA's Redesignation Guidance requires the submittal of a comprehensive inventory of ozone precursor emissions (VOC and NO_x) representative of the year when the area achieves attainment of the ozone air quality standard. Indiana must also demonstrate that the improvement in air quality between the year that violations occurred and the year that attainment was achieved is based on permanent and enforceable emission reductions. Other emissions inventory related requirements include a projection of the emission inventory to a year at least ten (10) years following redesignation; a demonstration that the projected level of emissions is sufficient to maintain the ozone standard; and a commitment to provide future updates of the inventory to enable tracking of emission levels during the ten (10) year maintenance period. The following subsections address each of these requirements. Photochemical modeling to support the NO_x SIP Call and IDEM's reclassification petition demonstration that LaPorte County is affected by overwhelming transport. Therefore, regional emission reductions affect ozone levels in LaPorte County far more so than emission reductions within the county itself. Because of the significance of regional emissions reductions, Section 4.0 summarizes both regional and local emissions information.

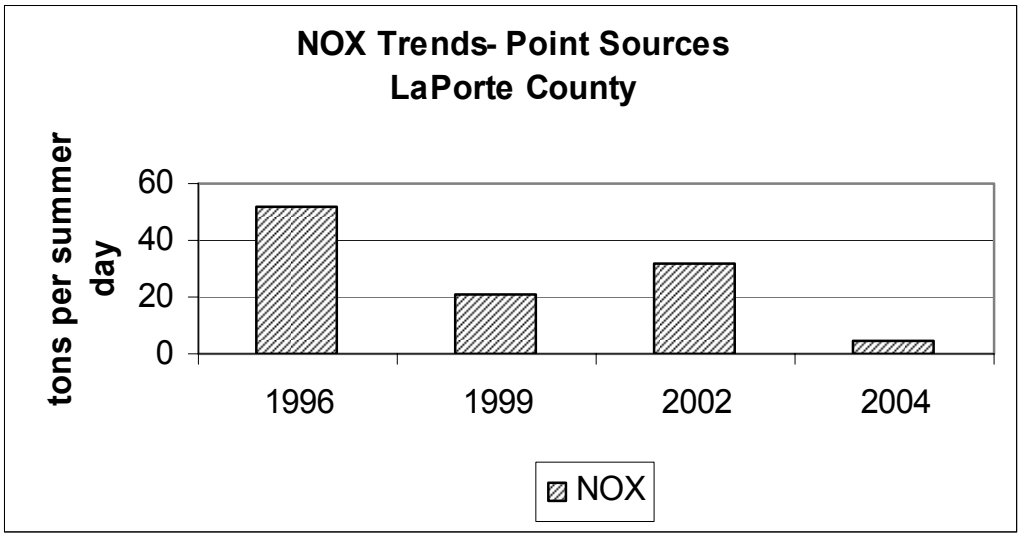
4.1 Emission Trends

Point Sources

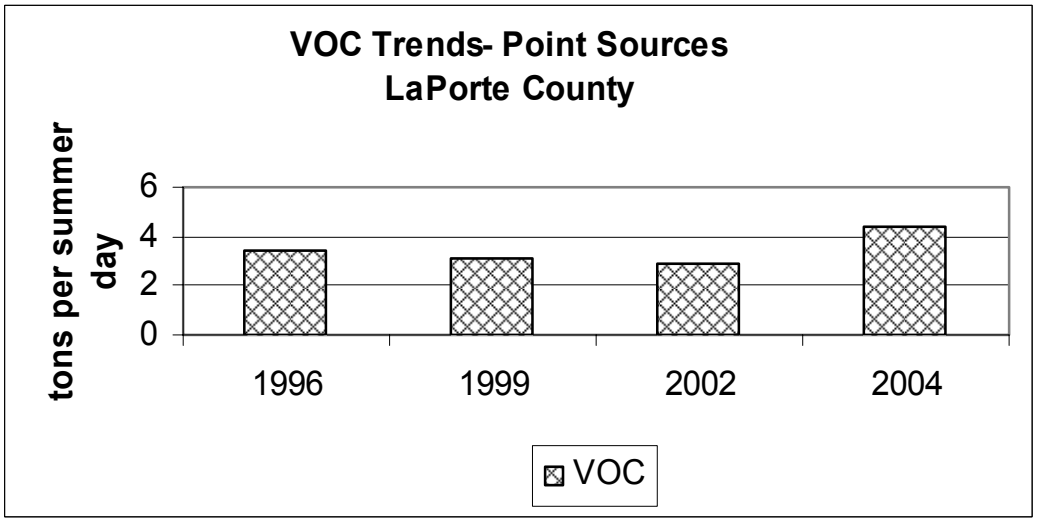
Graphs 4.1 and 4.2 show the trend in point source emissions of NO_x and VOC respectively that generally correspond to the years of monitored values referenced in this petition. The point source data are taken from Indiana's annual emissions reporting program.

1 www.in.gov/idem/

Graph 4.1 LaPorte County NO_x Point Source Emissions Trends 1996-2004



Graph 4.2 LaPorte County VOC Point Source Emissions 1996–2004



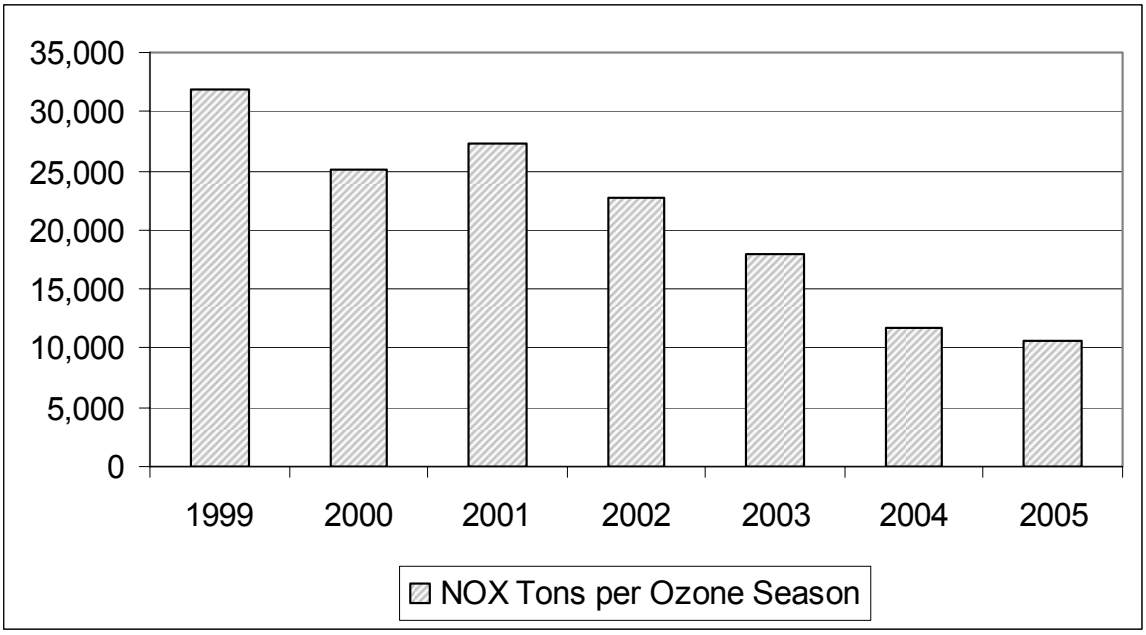
EGU Sources

Graph 4.3 shows the trends in regional NO_x emissions from EGUs for Northwest Indiana, including Jasper, Lake, LaPorte, and Porter counties. Graph 4.4 depicts the trends in statewide NO_x emissions from EGUs. While ozone and its precursors are also transported into this region from outside areas, this information does provide some indication of the impact that Indiana sources may have on the nonattainment area. The emissions are decreasing substantially in response to national programs affecting all EGUs such as the Acid Rain program and the NO_x SIP Call. Other sectors of the inventory also impact ozone formation, but large regional sources such as EGUs have a substantial impact on the formation of ozone.

These data were taken from U.S. EPA's Clean Air Markets database[2]. Data are available sooner for these units than other point sources in the inventory because of the NO_x SIP Call budget and trading requirements. Information from 2003 is significant because some EGUs started operation of their NO_x SIP Call controls in order to generate Early Reduction Credits for their future year NO_x budgets. The first season of the SIP Call budget period began May 31, 2004.

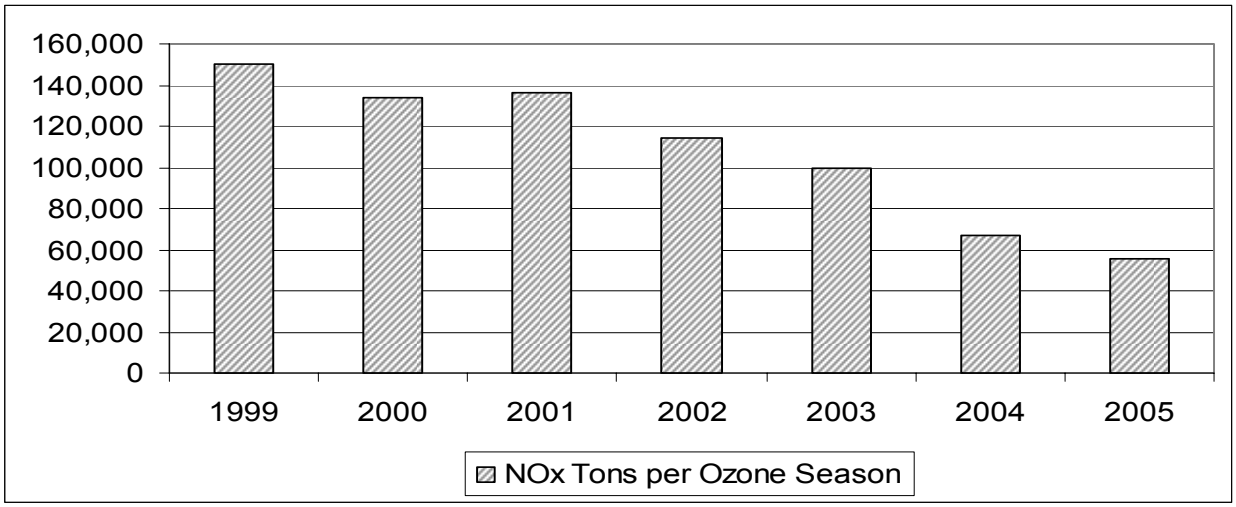
As part of the NO_x SIP Call, the states were required to adopt into their rules a budget for all large EGUs. Indiana's budget is referenced in 326 IAC 10-4. The budget represents a statewide cap on NO_x emissions. Although each unit is allocated emissions based upon historic heat input, utilities can meet this budget by over-controlling certain units or purchasing credits from the market to account for overages at other units. To summarize, NO_x emissions have dramatically decreased over the years represented on these graphs. These emissions, capped by the state rule, should remain at least this low through the maintenance period covered by this request.

Graph 4.3 NO_x Emissions from Northwest Indiana Electric Generating Units 1999-2005



[2] http://www.epa.gov/airmarkets

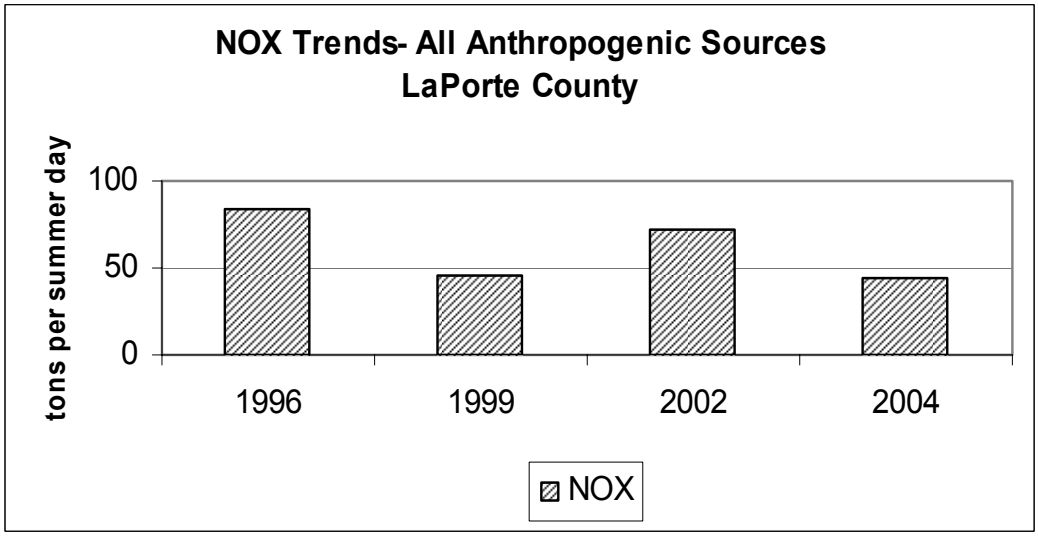
Graph 4.4 Statewide NO_x Emissions from Electric Generating Units 1999–2005



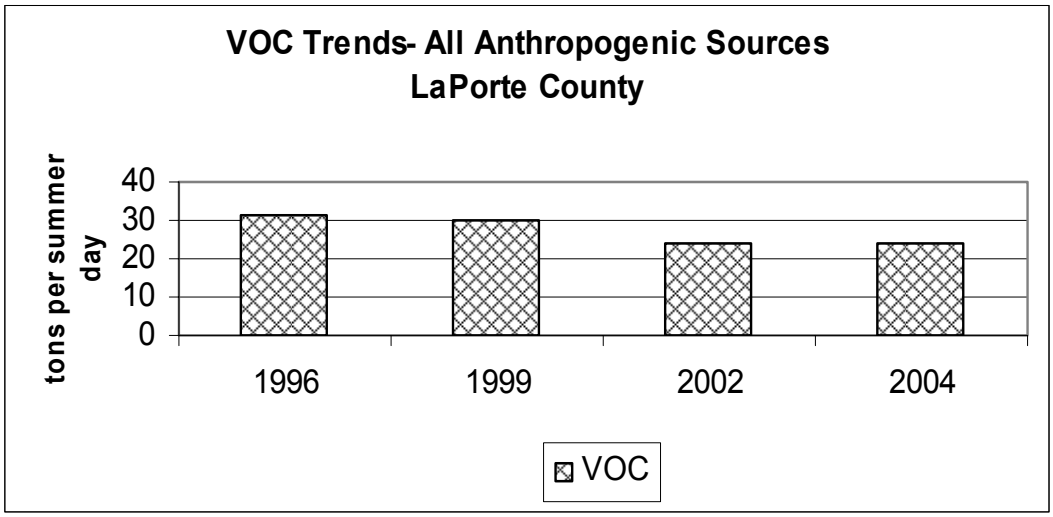
All Anthropogenic Sources

Periodic inventories, which include emissions from all sectors - mobile, area, non-road, and point sources - were prepared for 1996, 1999, 2002 and 2004. Graphs 4.5 and 4.6 show the trends for the total emissions for all anthropogenic source categories in these years, which also roughly follow the years of monitored trends discussed in Section 3. Graphs and data tables of emissions from each source category are available in Appendix B.

Graph 4.5 NO_x Emissions Trends, 1996-2004, All Sources in LaPorte County



Graph 4.6 VOC Emissions Trends, 1996 - 2004, All Sources in LaPorte County



4.2 Base Year Inventory

IDEM prepared a comprehensive inventory for LaPorte County, including area, mobile, and point sources for precursors of ozone (volatile organic compounds and nitrogen oxides) for base year 2004 (the middle year of the area's attainment design value).

- Area sources were grown from the Indiana 2002 periodic inventory submitted to U.S. EPA.
- Mobile source emissions were calculated from MOBILE6 produced emission factors and data extracted from the region's travel-demand model.
- Point source information was compiled from IDEM's 2004 annual emissions statement database and the 2005 U.S. EPA Air Markets acid rain database[3].
- Biogenic emissions are not included in these summaries.
- Nonroad emissions were grown from the 2002 National Emissions Inventory (NEI). To address concerns about the accuracy of some of the categories in U.S. EPA's nonroad emissions model, the Lake Michigan Air Directors' Consortium (LADCO) (Midwest Regional Planning Organization), contracted with two (2) companies to review the base data and make recommendations. One of the contractors also estimated emissions for two (2) nonroad categories not included in U.S. EPA's nonroad model. Emissions were estimated for commercial marine vessels and railroads. Recreational motorboat population and spatial surrogates (used to assign emissions to each county) were significantly updated. The populations for the construction equipment category were reviewed and updated based upon surveys completed in the Midwest and the temporal allocation for agricultural sources was also updated. A new nonroad estimation model was provided by U.S. EPA for the 2002 analysis.

Appendix B contains data tables and graphs of all these emissions.

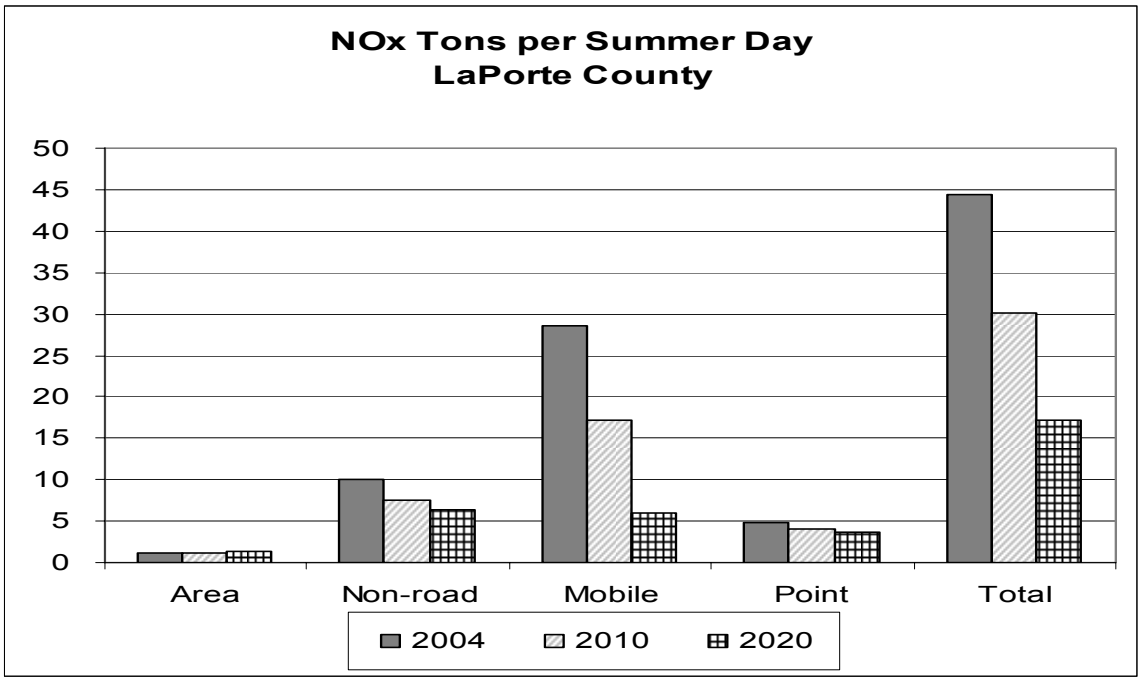
3 http://www.epa.gov/airmarkets/acidrain

4.3 Emission Projections

In consultation with the U.S. EPA and other stakeholders, IDEM selected the year 2020 as the maintenance year for this redesignation request. This document contains projected emissions inventories for 2010 and 2020 for LaPorte County. These emission projections were prepared by IDEM, with assistance from LADCO.

The detailed inventory information for LaPorte County for 2010 and 2020 is in Appendix B. Emission trends are an important gauge for continued compliance with the ozone standard. Therefore, IDEM performed an initial comparison of the inventories for the base year (2004), interim year (2010), and maintenance year (2020) for LaPorte county. Graphs 4.7 and 4.8 visually compare the 2004 (base year) estimated emissions with the 2010 and 2020 projected emissions for LaPorte County. Mobile source emission inventories are described in Section 5.0. In addition to LADCO's estimates, point source emissions were projected based upon the statewide EGU NO_x budgets from the Indiana NO_x rule.

Graph 4.7 Comparison of 2004 Estimated and 2010 and 2020 Projected NO_x Emissions for LaPorte County.



Graph 4.8 Comparison of 2004 Estimated and 2010 and 2020 Projected VOC Emissions for LaPorte County

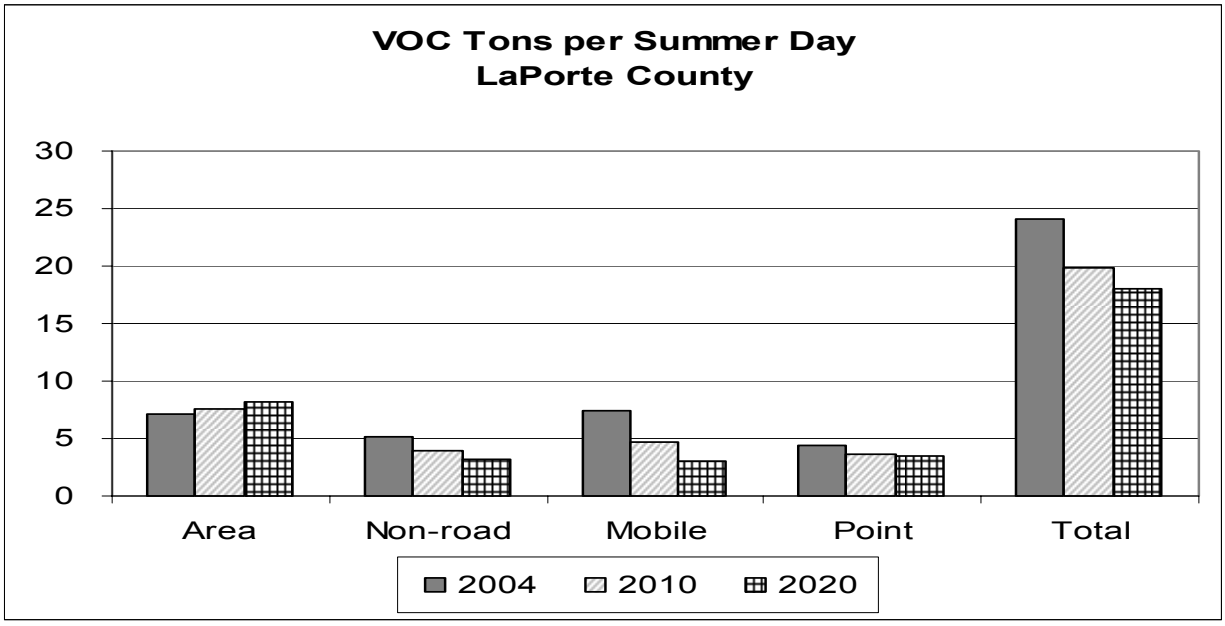


TABLE 4.1 Comparison of 2004 Estimated and 2020 Projected Emission Estimates in Tons Per Summer Day, LaPorte County, Indiana

Table 4.1	2004	2020	Change	% change
NOX	44.41	17.21	-27.2	-61.3
VOC	24.02	17.99	-6.03	-25.1

NO_x emissions within LaPorte County are projected to decline by 61.3% between 2004 and 2020. Emission reduction benefits from U.S. EPA rules covering the NO_x SIP Call, Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements[4], Highway Heavy-Duty Engine Rule[5] and Non-Road Diesel Engine Rule[6] are factored into the changes. Further, due to implementation of the NOx SIP Call across the eastern United States, NOx and ozone levels entering this area will also be decreased. The Clean Air Interstate Rule (CAIR), issued in March 2005 and to be implemented in late 2006, will reduce regional EGU NOx emissions by approximately another 15% in 2015. Since CAIR is a regional cap and trade program, it cannot be predicted at this time what effect this will have on EGU units located in LaPorte County or other upwind counties at this time. Therefore, potential reductions are not included in Graph 4.6 or Table 4.1. VOC emissions within LaPorte County are projected to decline by 25.1% between 2004 and 2020.

4 http://www.epa.gov/fedrgstr/EPA-AIR/2000/February/Day-10/a19a.htm
5 http://www.epa.gov/fedrgstr/EPA-AIR/1997/October/Day-21/a27494.htm
6 http://www.epa.gov/fedrgstr/EPA-AIR/1998/October/Day-23/a24836.htm

4.4 Demonstration of Maintenance

Ambient air quality data from both the monitoring sites indicate that air quality in LaPorte County met the NAAQS for ozone in both 2004 and 2005. U.S. EPA's Redesignation Guidance (Page 9) states, "A state may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emissions rates will not cause a violation of the NAAQS**."** Emissions projections outlined in Section 4.0 of this document clearly illustrate that NO_x and VOC emissions will continue to decline between 2004 (base year) and 2020. Section 7.0 further discusses the implications of these emissions trends and provides an analysis to support these conclusions. Therefore, air quality should meet the NAAQS ozone standard through the projected years of 2010 and 2020.

In Indiana, major point sources in all counties are required to submit air emissions information once every three (3) years or annually if VOC potential to emit is greater than 250 tons or NO_x potential to emit is greater than 2500 tons, in accordance with the Emission Statement Rule, 326 IAC 2-6. IDEM prepares a new periodic inventory for all ozone precursor emission sectors every three (3) years. These ozone precursor inventories will be prepared for 2005, 2008, and 2011 as necessary to comply with the inventory reporting requirements established in the CAAA. Emissions information will be compared to the 2004 base year and the 2020 projected maintenance year inventories to assess emission trends, as necessary, to assure continued compliance with the ozone standard.

4.5 Permanent and Enforceable Emissions Reductions

Permanent and enforceable reductions of volatile organic compounds and oxides of nitrogen have contributed to the attainment of the 8-hour ozone standard. Some of these reductions were due to the application of RACT rules and some were due to the application of tighter federal standards on new vehicles. Also, Title IV of the Clean Air Act and the NO_x SIP Call required the reduction of oxides of nitrogen from utility sources. Section 6.0 identifies the emission control measures specific to LaPorte County, as well as the implementation status of each measure.

4.6 Provisions for Future Updates

As required by Section 175A(b) of the CAAA, Indiana commits to submit to the Administrator, eight (8) years after redesignation, an additional revision of this SIP. The revision will contain Indiana's plan for maintaining the national primary ozone air quality standard for ten (10) years beyond the first ten (10) year period after redesignation.

5.0 TRANSPORTATION CONFORMITY BUDGETS

5.1 On-Road Emission Estimations

The Northwest Indiana Regional Planning Commission (NIRPC) is the Metropolitan Planning Organization (MPO) for the area that includes Lake, Porter and LaPorte counties. This organization maintains a travel demand forecast model that is used to simulate the traffic in the area and is used to predict what that traffic would be like in future years given growth expectations. The model is used mostly to identify where travel capacity will be needed and to determine the infrastructure requirements necessary to meet that need. It is also used to support the calculation of mobile source emissions. The travel demand forecast model is used to predict the total daily Vehicle Miles Traveled (VMT) and an EPA software program called MOBILE6 is used to calculate the emissions per mile. The product of these two outputs, once combined, is the total amount of pollution emitted by the on-road vehicles for the particular analyzed area.

5.2 Overview

Broadly described, MOBILE6 is used to determine "emission factors", which are the average emissions per mile (grams/mile) for ozone precursors: NOx and VOC. There are numerous variables that can affect the emission factors. The vehicle-fleet (vehicles on the road) age and the vehicles-types have a major effect on the emission factors. The facility-type the vehicles are traveling on (MOBILE6 facility-types are Freeway, Arterial, Local and Ramp) and the vehicle speeds also affect the emission factor values. Meteorological factors also affect the emission factors such as air temperature, humidity and also the Vehicle Inspection/Maintenance program in the area will also affect emissions. These data are estimated using the *best available data* (see section 5.3) to create emission factors for the appropriate ozone precursors, NOx and VOCs. After emission factors are determined, the emission factor(s) must be multiplied by the vehicle-miles-traveled (VMT) to determine the quantity of vehicle-related emissions. This information derives from the travel demand model.

There are a number of ways emission factors from MOBILE6 can be used with the travel demand model information. Extensive vehicle fleet, area-specific speed and facility-type information can be input into MOBILE6 to the extent that MOBILE6 provides a single emission factor that represents the average for all vehicles and facility-types in the modeled area. This simply requires multiplying this emission factor by the total VMT of the analyzed area to get the total emissions for the area. Another method is to create cross-reference tables that describe the emission factors for each speed on each facility type. This requires a much more extensive post-processing, but much less effort in preparing MOBILE6 input data. Tables of emission factors are created using MOBILE6 for each facility-type and speed given the vehicle fleet on that facility. Then, the travel model provides information on each segment of road (or "link") regarding speed and facility-type that is then cross-referenced with the appropriate emission factor table. This emission factor is multiplied by the link's traffic-volume and length (VMT) to get the emissions from that link. The sum of all these link-emissions in the LaPorte County area will be the total for the county. There are other methods as well, none being necessarily superior to the other. This analysis uses the former method, creating one emission factor.

It should be noted that each year analyzed will have different emission factors, volumes, speeds and likely some additional links. MOBILE6 input and output files can all be found in Appendix E.

5.3 Best Available Data

Depending on the details of the travel demand model, much of MOBILE6 input data for emission factor computation can be found in the model, but some must come from other sources. The NIRPC model has more detailed data than many models. Where almost all models have data on traffic speeds and road-type, the NIRPC model contains information on vehicle-type as well. It monitors the movement of three vehicle-types: (1) cars, (2) light freight trucks and buses and
(3) heavy trucks. The model also does a better job of speed analysis because it describes 3 times of day: (1) AM (morning) peak hours, (2) PM (afternoon) peak hours, and (3) off peak hours. This allows for a more thorough and accurate analysis of speeds over the course of the day. However, most models do not describe their facility-types and, in NIRPC's case, the vehicle-types in the same way as MOBILE6, so the data need to be translated from model categories into MOBILE6 categories. The MOBILE6 inputs that describe the vehicle fleet are the vehicle age distribution (also called the *registration distribution*) and VMT fraction (also called the *VMT mix*).

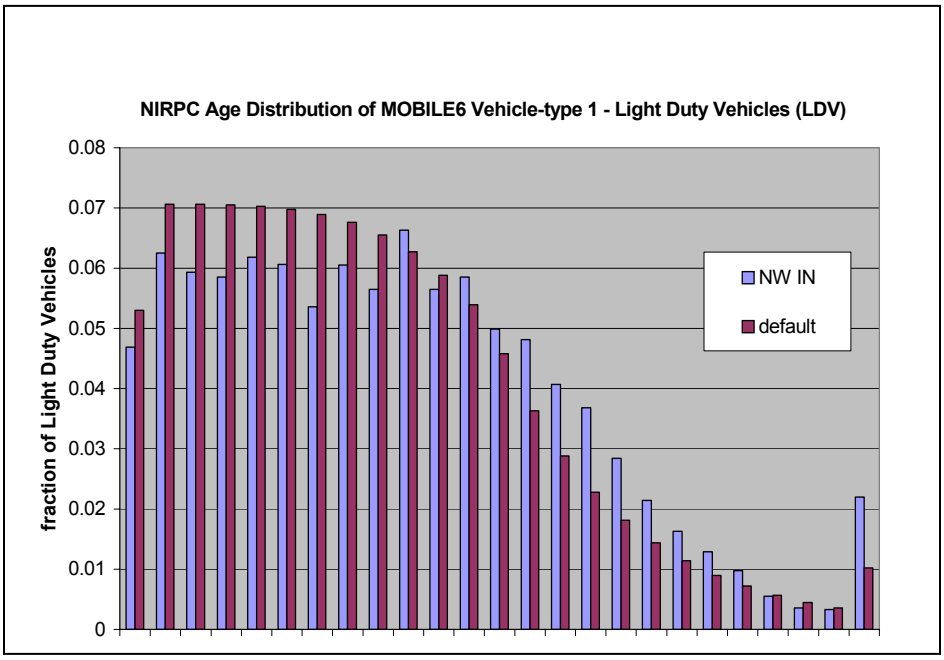
Vehicle Age Distribution

MOBILE6 has 16 different vehicle-type categories differentiated by weight. The first 5 are generally passenger vehicles: cars, vans and SUVs. The others are different sized trucks and buses and the last is motorcycles. This MOBILE6 vehicle age distribution describes what fraction of each of the 16 vehicle-types is one year old, two years old, and so on, up to the 25-and-older category. MOBILE6 has a default age profile of each vehicle-type taken from national surveys. (See Graph 5.1)

The LaPorte County area is a through-traffic area for an enormous amount of freight transportation due to its geographic location. National default age profiles make sense to use for freight vehicles, but for passenger vehicles, local data existed and was used for the age distribution for these first 5 MOBILE6 vehicle-types.

Vehicle Identification Numbers (VIN) provided by the Indiana Bureau of Motor Vehicles (BMV) for the year 2003 for LaPorte County were decoded and split into the first 5 MOBILE6 vehicle-types. These age distributions are not expected to change much over time, so they do not change for the different analysis years.

Graph 5.1 – Age Distribution for MOBILE6 Vehicle-Type 1 for Northwest Indiana (including LaPorte County) Compared to National Default Values



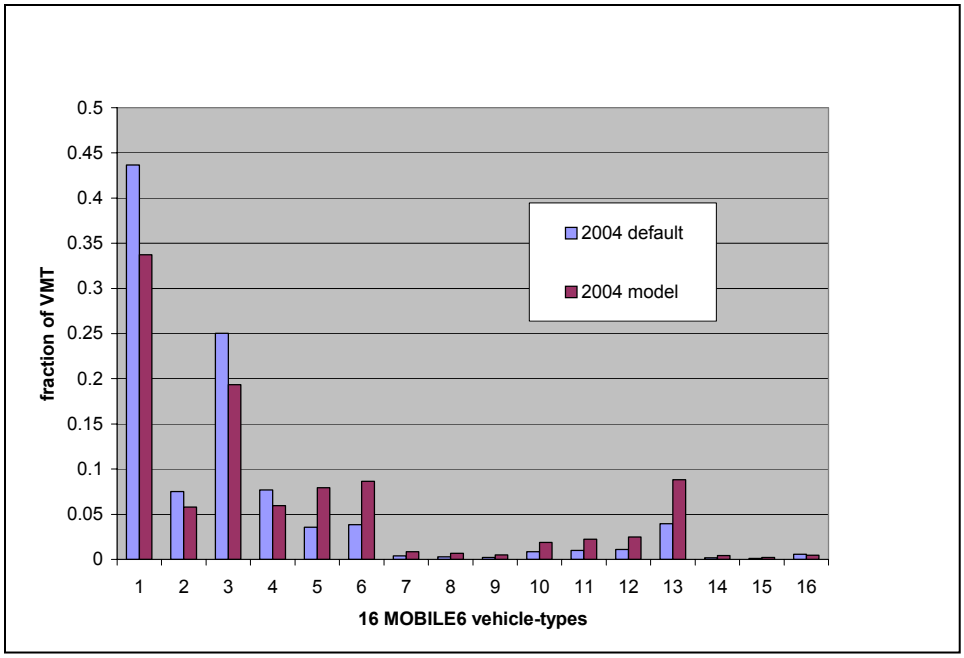
1.

VMT Fraction

This list of 16 numbers describes the fraction of the total VMT from each of the 16 vehicle-types. Although MOBILE6 will use national defaults if no VMT Fraction data are input, the LaPorte area has such a high amount of freight movement, national defaults would not be representative of the areas truck traffic.

As noted previously, the NIRPC travel demand model has 3 vehicle-types and the model outputs the total VMT from these vehicle-types. These need to be translated into the 16 vehicle-types of MOBILE6. This VMT can be redistributed onto the MOBILE6 vehicle-types based on default VMT Fractions using a method described as the "Disaggregation of Local Information" found in the "Technical Guidance on the Use of MOBILE6 for Emission Inventory Preparation", page 18-20. The vehicle-type 2 of the model is called light trucks (generally light freight and buses), but it does not correspond well with the MOBILE6 light duty trucks (generally SUV, etc.), so the model vehicle-types 2 and 3 were lumped together and distributed onto the MOBILE6 vehicle-types 5-15, while the model vehicle-type 1 was distributed to MOBILE6 vehicle-types 1-4 and 16 (motorcycles).

Graph 5.2 – VMT Fractions by MOBILE6 Vehicle-Types for LaPorte County



Speeds

Speeds can be an input to MOBILE6 in two different ways. MOBILE6 assumes Local and Ramp facility-types have fixed speeds of 12.9 and 34.6 mph, respectively. This cannot be changed; only Arterial and Freeway speeds can be input to MOBILE6. There is an Average Speed command that allows the average Freeway or Arterial speeds to be input. This is used extensively when building "look up" tables for the emission factor "look up" method mentioned previously. The most accurate and thorough MOBILE6 speed input method is to input speeds via two speed tables (one for each facility-type) which contain the fraction of VMT for each hour of the day that occurs in 14 speed-bins: 0-2.5mph, 2.5-7.5mph…up to >62.5 mph. Speeds that occur during the peak hours would be slower than the off peak, for example. MOBILE6 does contain national average default speeds that are useful for comparison purposes.

NIRPC uses the latter, more thorough method of inputting speeds. The travel model data are used for speed calculations. Each link of roadway has a speed calculated using the formulas shown below. The link volume, length and calculated speed are used to determine the VMT fraction to place into the proper speed bin in the speed tables.

The BPR (Bureau of Public Roads) Formula is used as follows:

Amtime=length/(posted speed*1.1)*60*(1+0.15*(volume/(2.55*capacity per lane*lanes))^4)
Pmtime=length/(posted speed*1.1)*60*(1+0.15*(volume/(2.84*capacity per lane*lanes))^4)
Optime=length/(posted speed*1.1)*60*(1+0.15*(volume/(12*capacity per lane*lanes))^4).
speed=length*60/xxtime

Socioeconomic data

Travel demand models contain hundreds of Travel Analysis Zones (TAZs) that have zone-specific information regarding population, employment, destinations and expected growth, among other things. These data are commonly referred to as the "socioeconomic data". These data are updated most accurately when new census data comes out. This model was updated in 2003 based on 2000 census data. The traffic analyses of future years are then based on growth projections. These growth projections are then put into the TAZs where the growth (or decline) is expected to occur.

5.4 Analysis Years

The travel demand model also contains the road network, thus, the information is time specific. NIRPC has modeled the years 2004, 2010 and 2020. This Redesignation Petition provides emission inventory estimates for 2004, 2010 and 2020 to meet the requirements specified by the Clean Air Act and the U.S. EPA. Each future analysis year model contains the road network NIRPC expects to exist at the beginning of that year with the concurrent socioeconomic growth projections expected.

5.5 Emission Estimations

Table 5.1 contains the results of the emissions analysis for the appropriate years.

Table 5.1 - Emission Estimations for On-Road Mobile Sources

LaPorte County	2004	2010	2020
VMT (miles/day)	5,753,523	6,118,318	7,276,316
VOC (tons/day)	7.36	4.75	3.09
NOx (tons/day)	28.52	17.15	5.91

5.6 Motor Vehicle Emission Budget

Table 5.2 contains the motor vehicle emissions budget for the LaPorte County ozone nonattainment area for the year 2020. Please note that IDEM and the consultation parties are considering incorporating a budget for the year 2010 as well, though it is not required. Therefore, this draft outlines a placeholder for a 2010 budget should it be deemed necessary.

Table 5.2 – Mobile Vehicle Emission Budgets

	2010*	2020
VOC (tons/day	5.25	3.40
NOx (tons/day)	18.85	6.50

*Outlined as a placeholder only.

This budget includes the emission estimates calculated for 2020 and a reasonable margin of safety. The emission estimates are derived from the NIRPC travel demand model and MOBILE6 as described above under the expected NIRPC 2030 Long Range Plan, which is yet to be fully adopted. The 2020 safety margins include 0.31 tons/day for VOC and 0.59 tons/day for NO_x. These correspond to a 10% increase from the 2020 on-road emission estimations. If it is determined that a 2010 interim budget year is necessary, a 10% margin of safety will likely be applied to that budget as well. Margins of safety are used to accommodate the wide array of assumptions that are factored into the calculation process. Since assumptions change over time, it is necessary to have a margin of safety that will accommodate the impact of refined assumptions in the process. This budget results in the 2020 emissions, for both VOC and NO_x, still being below the base year emissions shown in Graphs 4.7 and 4.8.

All methodologies, latest planning assumptions and the safety margins were determined through the interagency consultation process described in the Transportation Conformity Memorandum of Understanding (MOU) for the LaPorte Area.

6.0 CONTROL MEASURES AND REGULATIONS

This section provides specific information on the control measures implemented in LaPorte County, including CAAA requirements and additional state or local measures implemented beyond CAAA requirements.

6.1 Reasonably Available Control Technology (RACT)

As required by Section 172 of the CAAA, Indiana in the mid-1990s promulgated rules requiring RACT for emissions of VOCs. There were no specific rules required by the CAAA such as RACT for existing sources beyond statewide rules. Statewide RACT rules have applied to all new sources locating in Indiana since that time. The Indiana rules are found in 326 IAC 8. The following is a listing of applicable rules:

326 IAC 8-1-6 BACT for non-specific sources
326 IAC 8-2 Surface Coating Emission Limitations
326 IAC 8-3 Organic Solvent Degreasing Operations
326 IAC 8-4 Petroleum Sources
326 IAC 8-5 Miscellaneous Operation
326 IAC 8-6 Organic Solvent Emission Limitations

6.2 Implementation of Past SIP Revisions

This nonattainment area was not required to develop an Attainment Demonstration SIP for the one-hour ozone NAAQS. Similarly, since the area was only recently designated nonattainment for ozone and the area has now attained the standard, no Attainment Demonstration SIP has been required to bring the area into attainment for the 8-hour ozone NAAQS. Therefore, this requirement does not apply.

6.3 Nitrogen Oxides (NO_x) Rule

The U.S. EPA NO_x SIP Call required twenty-two (22) states to adopt rules that would result in significant emission reductions from large EGUs, industrial boilers, and cement kilns in the eastern United States. Indiana adopted this rule in 2001. Beginning in 2004, this rule will account for a reduction of approximately thirty-one percent (31%) of all NO_x emissions statewide compared to previous uncontrolled years.

Twenty-one other states have also adopted these rules. The result is that significant reductions will occur upwind and within the LaPorte County nonattainment area because of the number of affected units within the region. From Graphs 4.3 and 4.4 it can be seen that emissions covered by this program have been trending downward since 1999. Table 6.1, compiled from data taken from the U.S. EPA Clean Air Markets website, quantifies the gradual NO_x reductions that have occurred in Indiana as a result of Title IV of the Clean Air Act Amendments and the beginning of the NO_x SIP Call Rule. This cap will stay in place through 2008, at which time the CAIR program will supersede it.

Further, U.S. EPA has recently published Phase II of the NO_x SIP Call that establishes a budget for large (greater than 1 ton per day emissions) stationary internal combustion engines. This rule will decrease emissions statewide from natural gas compressor stations by 4,263 tons during the ozone season. This rule became effective February 26, 2006. Implementation of this rule will be in 2007.

TABLE 6.1 Trends in EGU Ozone Season NO_x Emissions Statewide in Indiana

Year	NO_x Emissions, tons / ozone season
1997	152,834
1998	159,931
1999	149,827
2000	133,881
2001	136,121
2002	114,082
2003	99,967
Cap 2004-2009	43,654

6.4 Measures Beyond Clean Air Act SIP Requirements

Reductions in ozone precursor emissions have occurred, or are anticipated to occur, as a result of local and federal control programs. These additional control measures include:

Tier II Emission Standards for Vehicles and Gasoline Sulfur Standards

In February 2000, U.S. EPA finalized a federal rule to significantly reduce emissions from cars and light trucks, including sport utility vehicles (SUVs). Under this proposal, automakers will be required to sell cleaner cars, and refineries will be required to make cleaner, lower sulfur gasoline. This rule will apply nationwide. The federal rules will be phased in between 2004 and 2009. U.S. EPA has estimated that NO_x emission reductions will be approximately seventy-seven percent (77%) for passenger cars, eighty-six percent (86%) for smaller SUVs, light trucks, and minivans, and sixty-five to ninety-five percent (65-95%) reductions for larger SUVs, vans, and heavier trucks. VOC emission reductions will be approximately twelve percent (12%) for passenger cars, eighteen percent (18%) for smaller SUVs, light trucks, and minivans, and fifteen percent (15%) for larger SUVs, vans, and heavier trucks.

Heavy-Duty Diesel Engines

In July 2000, U.S. EPA issued a final rule for Highway Heavy Duty Engines, a program that includes low-sulfur diesel fuel standards, which will be phased in from 2004 through 2007. This rule applies to heavy-duty gasoline and diesel trucks and buses. This rule will result in approximately a forty percent (40%) reduction in NO_x from diesel trucks and buses, a large sector of the mobile sources NO_x inventory.

Clean Air Nonroad Diesel Rule

In May 2004, U.S. EPA issued the Clean Air Nonroad Diesel Rule. This rule applies to diesel engines used in industries such as construction, agriculture, and mining. It also contains a cleaner fuel standard, similar to the highway diesel program. The new standards will cut emissions from nonroad diesel engines by over ninety percent (90%). Nonroad diesel equipment, as described in this rule, currently accounts for forty-seven (47%) percent of diesel particulate matter (PM) and twenty-five percent (25%) of nitrogen oxides (NO_x) from mobile sources nationwide. Sulfur levels will be reduced in nonroad diesel fuel by ninety-nine percent (99%) from current levels, from approximately three-thousand (3,000) parts per million (ppm) now to (fifteen) 15 ppm in 2010. New engine standards take effect, based on engine horsepower, starting in 2008.

Together, these rules will substantially reduce local and regional sources of ozone precursors. The modeling analyses discussed in Section 7.0 include these rules and show the ozone concentrations expected to result from the implementation of these rules.

6.5 Controls to Remain in Effect

Indiana commits to maintain the control measures listed above after redesignation, or submit to U.S. EPA as a SIP revision any changes to its rules or emission limits applicable to VOC or NO_x sources as required for maintenance of the ozone standard in LaPorte County.

Indiana, through IDEM's Office of Air Quality and its Office of Enforcement, has the legal authority and necessary resources to actively enforce any violations of its rules or permit provisions. After redesignation, it intends to continue enforcing all rules that relate to the emission of ozone precursors in LaPorte County.

6.6 New Source Review Provisions

Indiana has a long standing and fully implemented New Source Review (NSR) program that is outlined in rule 326 IAC 2. The rule includes provisions for the Prevention of Significant Deterioration (PSD) permitting program in 326 IAC 2-2. Indiana's PSD program was conditionally approved on March 3, 2003 (68 FR 9892) and received final approval on May 20, 2004 (69 FR 29071) by U.S. EPA as part of the SIP.

Any facility that is not listed in the 2002 emission inventory, or for the closing of which credit was taken in demonstrating attainment, will not be allowed to construct, reopen, modify, or reconstruct without meeting all applicable permit rule requirements. The review process will be identical to that used for new sources. Once the area is redesignated, OAQ will implement NSR through the PSD program, which requires an air quality analysis to evaluate whether the new source will threaten the NAAQS.

7.0 MODELING AND METEOROLOGY

7.1 Summary of Modeling Results for National Emission Control Strategies in Final Rulemakings

Although U.S. EPA's redesignation guidance does not require modeling for ozone nonattainment areas seeking redesignation, modeling has been performed covering the Northwest Indiana region to determine the effect of national emission control strategies on ozone levels. The modeling analysis determined that LaPorte County is significantly impacted by ozone and ozone precursor transport, and regional NO_x reductions are an effective way to maintain the 8-hour standard in this area.

On March 10, 2005, the U.S. EPA finalized the Clean Air Interstate Rule (CAIR). NO_x emissions will be cut from 4.5 million tons in 2003 to a cap of 1.7 million tons by 2009 and 1.3 million tons in 2015 in 28 eastern states and the District of Columbia. U.S. EPA performed modeling to support the associated emission reductions. The modeling was based on 1999 – 2003 design values. Future year modeling was conducted, including for LaPorte County, and the future year design values for 2010 and 2015 were evaluated for attainment of the 8-hour ozone NAAQS, as shown below in Table 7.1. Results of the CAIR modeling show that LaPorte County will attain the 8-hour ozone NAAQS in 2010 with modeled concentrations below 85 ppb. With further reductions projected in CAIR for 2015, all design values continue to decrease and

maintain the 8-hour ozone NAAQS.

Table 7.1 Modeling Results from U.S. EPA for the Clean Air Interstate Rule

County	Design Value (ppb)	Future Design Value	Future Design Value
	1999-2003	2010 with CAIR	2015 with CAIR
LaPorte	90.0	81.8	79.4

U.S. EPA's most recent modeling to support CAIR demonstrates that existing national emission control measures will bring and keep LaPorte County into attainment of the 8-hour ozone NAAQS. In addition to the emission reductions associated with CAIR, the modeling accounts for reductions from other federal control programs like Phase II of the NOx SIP Call, Tier II Engine and Low Sulfur Gasoline Standards, Heavy-Duty Diesel Rule, and the Non-Road Diesel Rule.

7.2 Temperature Analysis for LaPorte County

Meteorological conditions are one of the most important factors that influence ozone development and transport. A temperature analysis has been conducted to determine how the temperatures during the ozone conducive months of May, June, July, August and September compare to normal temperatures for the Northern Indiana area for the years 1971 through 2000. Temperature information was taken from the Michigan City Coast Guard Station (station ID K18C). Available normal maximum temperatures by summer months from 1971-2000 for the Northern Indiana area are as follows:

May – 70.1^{o} F
June – 79.1^{o} F
July – 82.7^{o} F
August – 81.4^{o} F
September – 73.6^{o} F
May - September – 77.4^{o} F

LaPorte County's monthly maximum temperatures for the previous 11 years (1995 – 2005) during the summer months are compared to normal summer month temperatures in Table 7.5. Overall, the temperatures during the 1995, 1998, 1999, 2002 and 2005 summer months of May, June, July, August, and September were 1% to 3% above normal while temperatures during the 1996, 1997, 2000, 2001, 2003 and 2004 summer months were at normal to 4% lower than the normal temperatures. Table 7.2 shows the average temperatures in Northern Indiana for each of the past nine years and the percent difference from normal for each year.

Table 7.2 Analysis of Maximum Temperatures for LaPorte County

(Percent Change from Maximum Temperature (^{o}F) Normals (1971 – 2000))

	Normal	1995		1996		1997		1998		1999		2000	
	Max	Max	%	Max	%	Max	%	Max	%	Max	%	Max	%
May	70.1	67.5	-4	65.8	-6	62.7	-11	75.5	+8	73.5	+5	71.8	+2
June	79.2	80.6	+2	78.1	-1	78.6	-1	78.1	-1	80.0	+1	76.8	-3
July	82.7	84.1	+2	78.9	-5	81.7	-1	81.8	-1	86.7	+5	78.5	-5
August	81.4	83.8	+3	80.9	-1	76.4	-6	81.2	0	77.6	-5	80.7	-1
September	73.6	73.2	-1	72.0	-2	72.5	-1	79.4	+8	76.7	+4	74.5	+1
AVE.	**77.4**	**77.8**	**+1**	**75.1**	**-3**	**74.4**	**-4**	**79.2**	**+2**	**78.9**	**+2**	**76.5**	**-1**

	Normal	2001		2002		2003		2004		2005	
	Max	Max	%	Max	%	Max	%	Max	%	Max	%
May	70.1	71.5	+2	65.2	-7	65.4	-7	71.3	+2	67.6	-4
June	79.2	77	-3	81.3	+3	74.5	-6	76.4	-3	82.6	+4
July	82.7	82.3	0	85.9	+4	81	-2	79.6	-4	85	+3
August	81.4	82.8	+2	81.8	0	82.1	+1	75.1	-8	82.5	+1
September	73.6	73.2	-1	79.1	+7	72.1	-2	77.1	+5	79.3	+8
AVE.	**77.4**	**77.4**	**0**	**78.7**	**+2**	**75.0**	**-3**	**75.9**	**-2**	**79.4**	**+3**

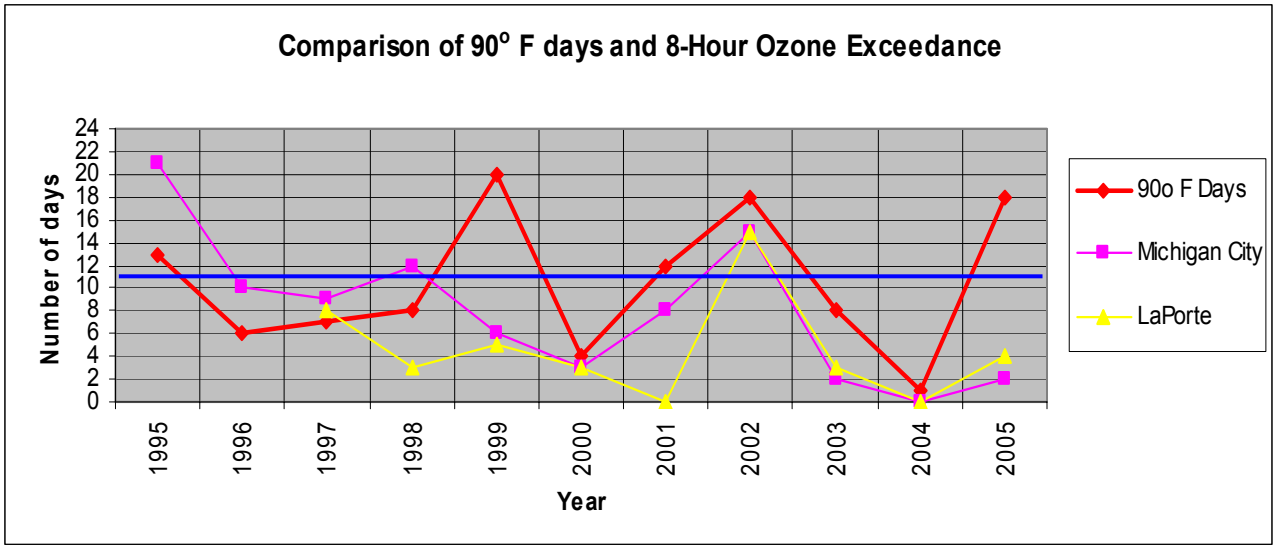
The number of days with temperatures of 90^{o} F and higher was collected from Michigan City Coast Guard Meteorological Station and compared to the normal number of days calculated from 1995 through 2005. The average number of 90^{o} F and higher days for the LaPorte County area is 11.2. Table 7.3 shows a comparison of 8-hour ozone exceedances and temperatures while Graph 7.1 shows the correlation graphically.

Table 7.3 - Comparison of Days with 90^{o} F and 8-Hour Ozone Exceedance Days

Number of Days with Temperatures of 90^{o} F and higher												
	Average '71-'00	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
# of 90^{o} F days	11.2	13	6	7	8	20	4	12	18	8	1	13
Number of 8-Hour Exceedance Days at LaPorte County ozone monitors												
Monitor	**County**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Michigan City	LaPorte	21	10	9	12	6	3	8	15	2	0	2
LaPorte	LaPorte	N/O	N/O	8	3	5	3	0	15	3	0	4

N/O – Not Operational

Graph 7.1 - Comparison of Days with 90° F and 8-Hour Ozone Exceedance Days



There is not a strong correlation between the number of ozone exceedance days per year and the number of 90° F days per year, especially in the mid and late 1990's. This can be attributed to the influence from Lake Michigan. Ozone forms over the lake and when a lake breeze is evident or surface winds are blowing from the west, the ozone is transported from the lake onshore into the LaPorte County region. This is especially evident for the years 1995 through 1998 when the number of 8-hour ozone exceedance days recorded at Michigan City were greater than the number of 90° F days. Typically, the number of 90° F days is greater than the number of 8-hour exceedance days. The correlation between the two is more prevalent after 1998, most likely due to emission controls associated with the Clean Air Act and the NOx SIP call.

7.3 Summary of Meteorological Conditions

The analysis of the departure from normal of the maximum temperatures during the summer months shows variation as illustrated in Table 7.6. The analysis shows that 12 or more days with temperatures of 90° F and higher occurred in 1995, 1999, 2001, 2002 and 2005. The number of 8-hour ozone exceedance days for those years shows a greater correlation to the number of higher temperature days. However, the years with a lesser number of 90° F days still yielded 8-hour ozone exceedance days; this can be attributed to the influence from ozone and ozone pre-cursor emissions over Lake Michigan being transported into LaPorte County. For example, 1996 through 1998 had fewer than normal amounts of 90° F days; however, there were still a significant number of 8-hour ozone exceedances for those years. In fact, the number of 8-hour ozone exceedance days was greater in 1995-1999 in Michigan City than the number of 90° F days. In comparison, 2003 had the same number of 90° F days as 1998, but due to lower emissions than in 1998, there were fewer ozone exceedances. Lower ozone values correspond to lowered local and regional ozone precursor emissions. This is why U.S. EPA developed the 8-hour standard as a 4th high ozone value averaged over 3 years to account for variations in temperature. Despite such temperature variations, ozone values in LaPorte County have generally decreased since 1995.

8.0 CORRECTIVE ACTIONS

8.1 Commitment to Revise Plan

As noted in Section 4.6 above, Indiana hereby commits to review its Maintenance Plan eight (8) years after redesignation, as required by Section 175(A) of the CAAA.

8.2 Commitment for Contingency Measures

Indiana hereby commits to adopt and expeditiously implement necessary corrective actions in the following circumstances:

Warning Level Response:
A Warning Level Response shall be prompted whenever an annual (1-year) fourth high monitored value of 0.089 ppm occurs in a single ozone season, or a two (2)-year average fourth high monitored value of 0.085 parts per million (ppm) or greater occurs within the maintenance area. A Warning Level Response will consist of a study to determine whether the ozone value indicates a trend toward higher ozone values or whether emissions appear to be increasing. The study will evaluate whether the trend, if any, is likely to continue and, if so, the control measures necessary to reverse the trend taking into consideration ease and timing for implementation, as well as economic and social considerations. Implementation of necessary controls in response to a Warning Level Response trigger will take place as expeditiously as possible, but in no event later than twelve (12) months from the conclusion of the most recent ozone season (September 30).

Should it be determined through the Warning Level study that action is necessary to reverse the noted trend, the procedures for control selection and implementation outlined under "Action Level Response" shall be followed.

Action Level Response

An Action Level Response shall be prompted whenever a violation of the standard (three (3)-year average fourth high value of 0.085 ppm or greater) occurs. In the event that the Action Level is triggered and is not found to be due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, IDEM will determine additional control measures needed to assure future attainment of NAAQS for ozone. In this case, measures that can be implemented in a short time will be selected in order to be in place within eighteen (18) months from the close of the ozone season that prompted the Action Level.

Control Measure Selection and Implementation

Adoption of any additional control measures is subject to the necessary administrative and legal process. This process will include publication of notices, an opportunity for public hearing, and other measures required by Indiana law for rulemaking by state environmental boards.

If a new measure/control is already promulgated and scheduled to be implemented at the federal or state level, and that measure/control is determined to be sufficient to address the upward trend in air quality, additional local measures may be unnecessary. Furthermore, Indiana will submit to U.S. EPA an analysis to demonstrate the proposed measures are adequate to return the area to attainment.

8.3 Contingency Measures

Contingency measures to be considered will be selected from a comprehensive list of measures deemed appropriate and effective at the time the selection is made. Listed below are example measures that may be considered. The selection of measures will be based upon cost-effectiveness, emission reduction potential, economic and social considerations or other factors that IDEM deems appropriate. IDEM will solicit input from all interested and affected persons in the maintenance area prior to selecting appropriate contingency measures. All of the listed contingency measures are potentially effective or proven methods of obtaining significant reductions of ozone precursor emissions. Because it is not possible at this time to determine what control measure will be appropriate at an unspecified time in the future, the list of contingency measures outlined below is not comprehensive. Indiana anticipates that if contingency measures should ever be necessary, it is unlikely that a significant number (i.e., all those listed below) will be required.

1) Lower-Reid vapor pressure gasoline program.
2) Broader geographic applicability of existing measures.
3) Tighten RACT on existing sources covered by U.S. EPA Control Technique Guidelines issued in response to the 1990 CAAA.
4) Apply RACT to smaller existing sources.
5) A modern vehicle inspection/maintenance program.
6) One or more transportation control measures sufficient to achieve at least a half a percent (0.5%) reduction in actual area wide VOC emissions. Transportation measures will be selected from the following based upon the factors listed above after consultation with affected local governments:
    a) Trip reduction programs, including, but not limited to, employer-based transportation management plans, area wide rideshare programs, work schedule changes, and telecommuting.
    b) Transit improvements.
    c) Traffic flow improvements.
    d) Other new or innovative transportation measures not yet in widespread use that affects state and local governments deemed appropriate.
7) Alternative fuel and diesel retrofit programs for fleet vehicle operations.
8) Controls on consumer products consistent with those adopted elsewhere in the United States.
9) Require VOC or NO_x emission offsets for new and modified major sources.
10) Require VOC or NO_x emission offsets for new and modified minor sources.
11) Increase the ratio of emission offsets required for new sources.
12) Require VOC or NO_x controls on new minor sources (less than 100 tons).

No contingency measure shall be implemented without providing the opportunity for full public participation during which the relative costs and benefits of individual measures, at the time they are under consideration, can be fully evaluated.

9.0 PUBLIC PARTICIPATION

Indiana published notification for a public hearing and solicitation for public comment concerning the draft Redesignation Petition and Maintenance Plan in the News Dispatch, Michigan City, the LaPorte Herald – Argus, LaPorte, Indiana, and The Indianapolis Star, Indianapolis, Indiana, on or before March 10, 2006.

A public hearing to receive comments on the redesignation request was conducted on April 10, 2006 at the LaPorte County Library, LaPorte, Indiana and a number of comments were received. The public comment period closed on April 17, 2006. Appendix F includes a copy of the public notice, certifications of publication, the transcript from the public hearing, public hearing attendance record, copies of all written comments received, and a summary of all comments received that includes IDEM's responses, as applicable.

10.0 CONCLUSIONS

LaPorte County has attained the NAAQS standard for ozone. This petition demonstrates that LaPorte County has complied with the applicable provisions of the 1990 Amendments to the Clean Air Act regarding redesignation of ozone nonattainment areas. IDEM has prepared a State Implementation and Maintenance Plan that meets the requirement of Section 110 (a)(1) of the 1990 Clean Air Act.

Indiana has performed an analysis that shows the air quality improvements are due to permanent and enforceable measures and that additional significant regional NO_x reductions following implementation of Phase II NO_x and CAIR will ensure continued compliance (maintenance) with the standard. Based on this presentation, the LaPorte ozone marginal nonattainment area meets the requirements for redesignation under the CAA and U.S. EPA guidance. Furthermore, because this area is subject to significant transport of pollutants, significant regional NO_x reductions will ensure continued compliance (maintenance) with the standards with an increasing margin of safety.

Consistent with the authority granted to the U.S. EPA, the State of Indiana hereby requests that the LaPorte County ozone marginal nonattainment area be redesignated to attainment simultaneously with U.S. EPA approval of the Indiana State Implementation and Maintenance Plan provisions contained herein.

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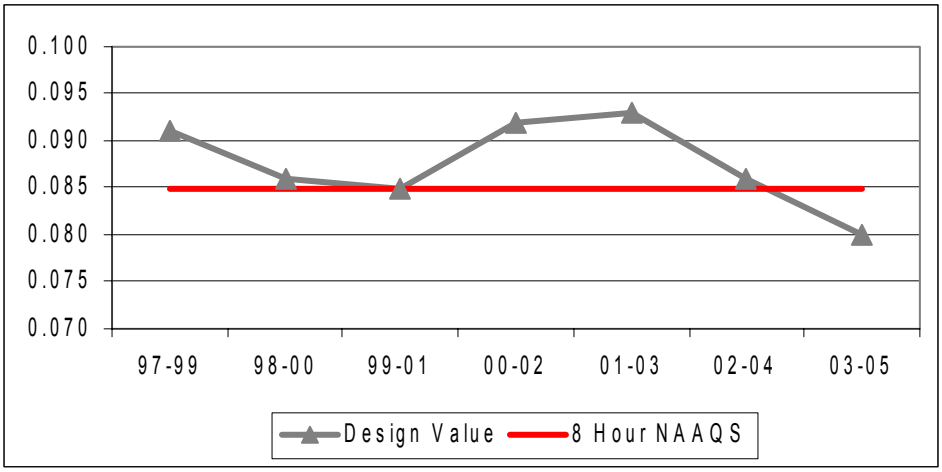
APPENDIX A

Aerometric Information Retrieval System (AIRS) Data

AIRS ID	CITY	SITE NAME	YEAR	1st	2nd	3rd	4th	03-05 Design Value
18-091-0005	Michigan City	NIPSCO Gas Station	2003	0.090	0.09	0.082	0.082	
18-091-0005	Michigan City	NIPSCO Gas Station	2004	0.076	0.075	0.071	0.070	
18-091-0005	Michigan City	NIPSCO Gas Station	2005	0.097	0.093	0.091	0.084	0.078
18-091-0010	LaPorte	12011 E. Lincolnway	2003	0.091	0.086	0.085	0.084	
18-091-0010	LaPorte	12011 E. Lincolnway	2004	0.074	0.071	0.069	0.068	
18-091-0010	LaPorte	12011 E. Lincolnway	2005	0.093	0.092	0.09	0.089	0.080

Site #	City	Site Name	Three Year 8-hr Design Values						
			97-99	98-00	99-01	00-02	01-03	02-04	03-05
180910005	Michigan City	Michigan City	0.091	0.086	0.085	0.092	0.093	0.086	0.078
180910010	LaPorte	Water Trmt Plant	0.088	0.081	0.079	0.084	0.087	0.084	0.080



City	Site Name	Yearly Annual 8-hr Values										
		1995	1996	1997	1998	1999	2000	2001	2002*	2003	2004	2005
Michigan City	Michigan City	0.114	0.102	0.096	0.093	0.086	0.080	0.090	0.107	0.082	0.070	0.084
LaPorte	Water Trmt Plant	Site Started in May 1997		0.095	0.084	0.086	0.074	0.079	0.100	0.084	0.068	0.089

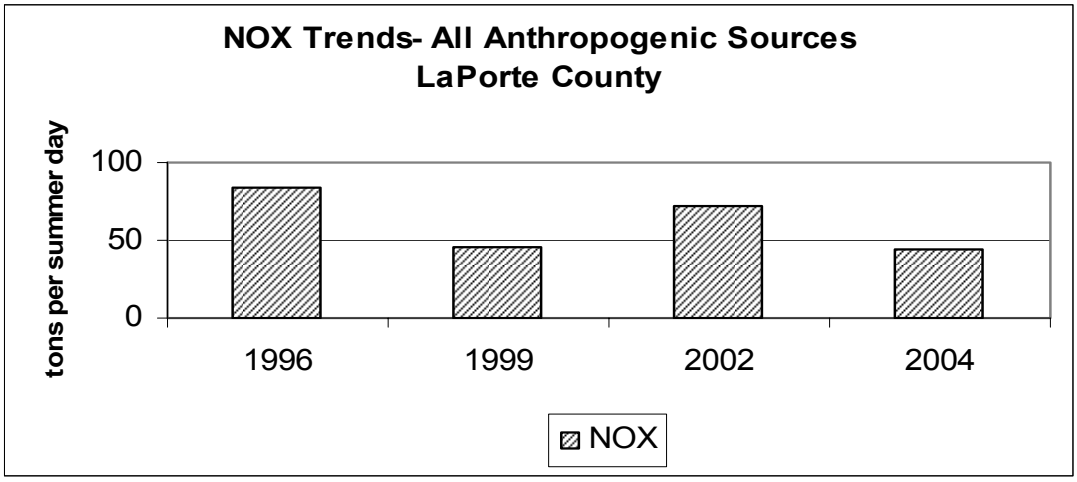
City	Site Name	Three Year 8-hr Design Values								
		95-97	96-98	97-99	98-00	99-01	00-02*	01-03*	02-04*	03-05
Michigan City	Michigan City	0.104	0.097	0.091	0.086	0.085	0.092	0.093	0.086	0.078
LaPorte	Water Trmt Plant	0.095B	0.089C	0.088	0.081	0.079	0.084	0.087	0.084	0.080

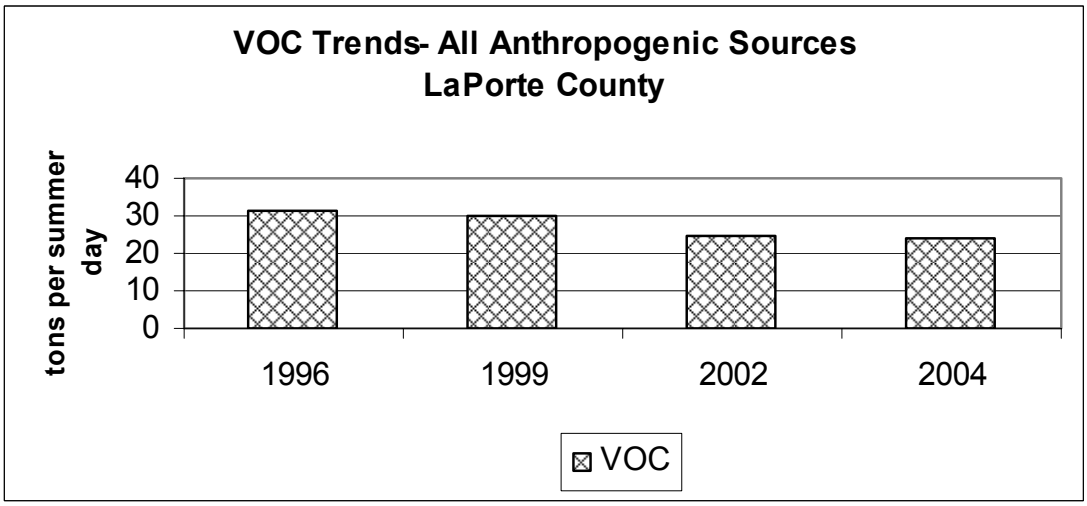
APPENDIX B

Emissions Inventories

TOTAL

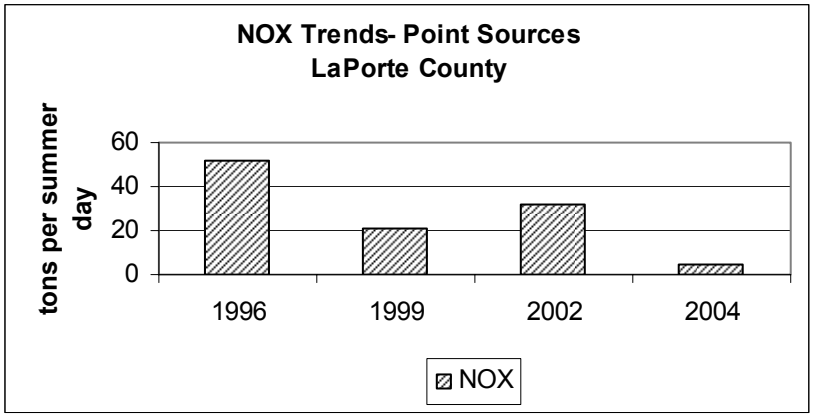
Year	NOX	VOC
1996	83.71	31.02
1999	45.39	29.67
2002	71.61	24.52
2004	44.41	24.02

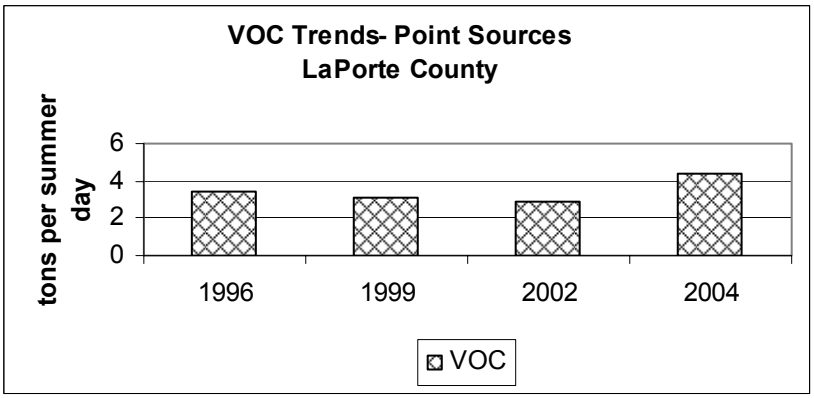




POINT

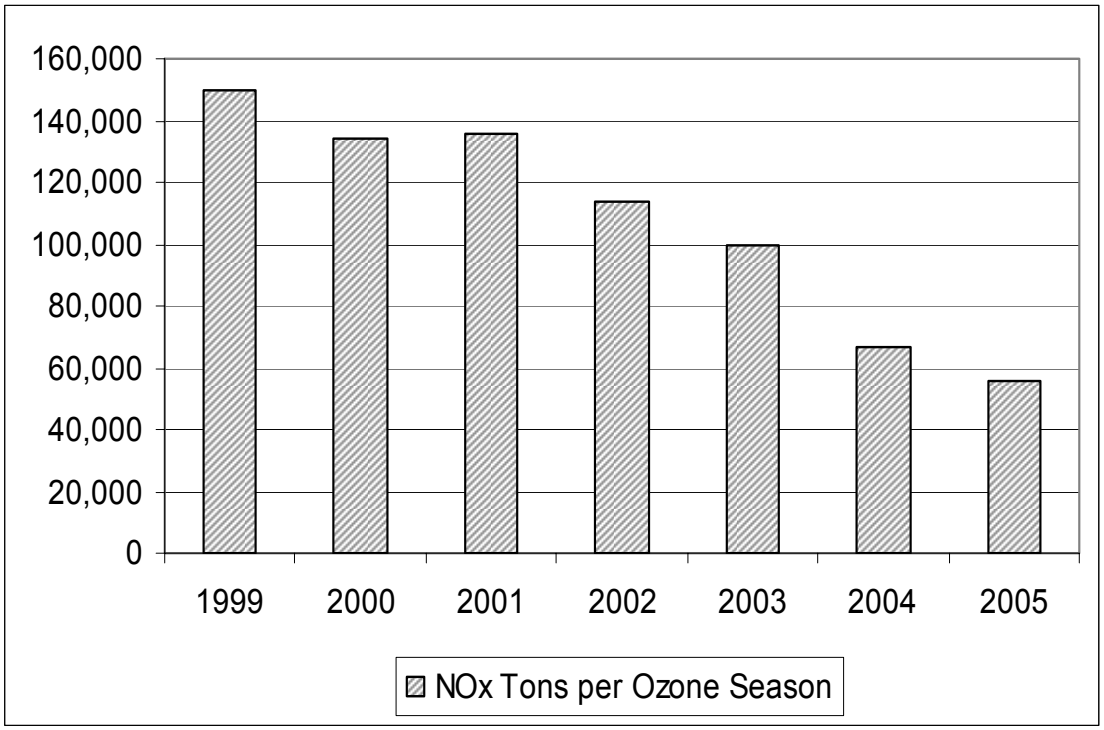
Year	NOX	VOC
1996	52.19	3.43
1999	20.88	3.07
2002	31.45	2.88
2004	4.80	4.36





STATEWIDE EGU NOx TRENDS

Year	NOx Tons per Ozone Season
1997	152,834
1998	159,931
1999	149,827
2000	133,881
2001	136,052
2002	113,996
2003	99,283
2004	66,568
2005	55,486



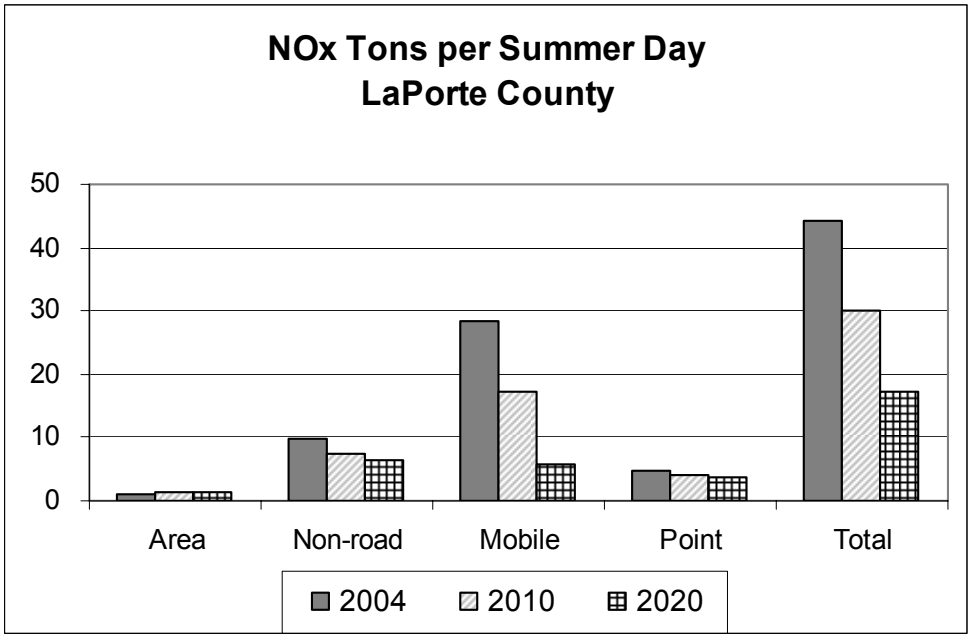
Northwest Indiana EGU NOx Trends

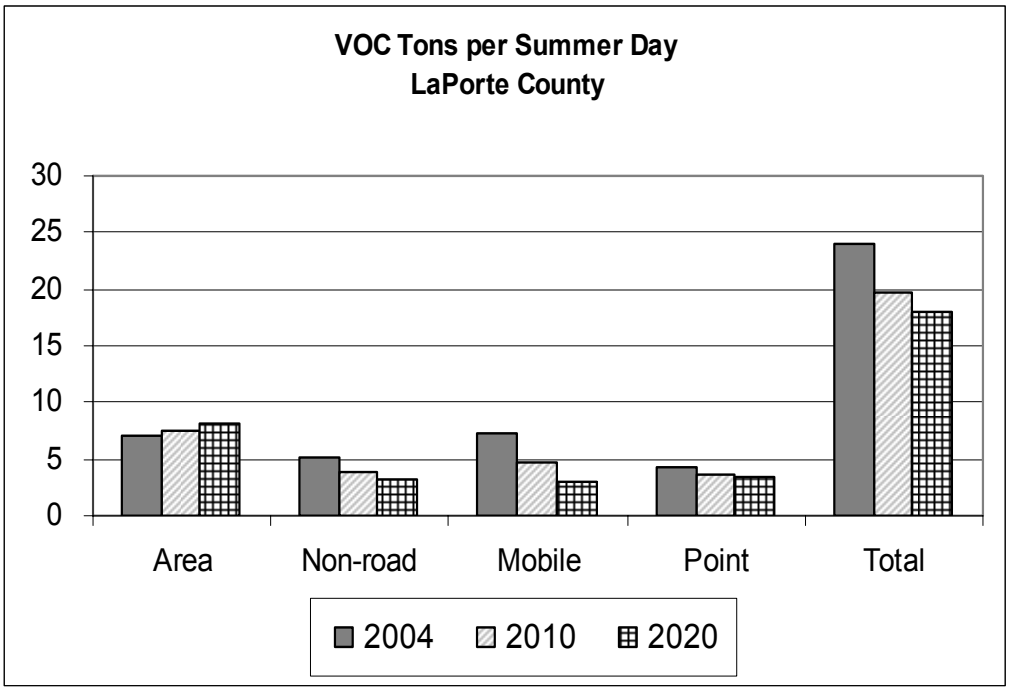
Year	NOX Tons per Ozone Season
1999	31,815
2000	25,028
2001	27,394
2002	22,661
2003	17,984
2004	11,798
2005	10,591

APPENDIX C

2010 and 2015 Projected Emissions Inventories

Sector	NOX 2004	NOx 2010	NOx 2020
Area	1.13	1.20	1.26
Non-road	9.96	7.57	6.41
Mobile	28.52	17.15	5.91
Point	4.80	4.15	3.63
Total	**44.41**	**30.07**	**17.21**
Sector	**VOC**	**VOC**	**VOC**
Area	7.17	7.51	8.14
Non-road	5.13	3.93	3.23
Mobile	7.36	4.75	3.09
Point	4.36	3.61	3.53
Total	**24.02**	**19.80**	**17.99**




VOC Tons per Summer Day
LaPorte County
30
25
20
15
10
5
0
Area
Non-road
Mobile
Point
Total
2004
2010
2020

APPENDIX D

Public Participation Documentation

LEGAL NOTICE OF PUBLIC HEARING
Redesignation Petition and Maintenance Plan
in association with the 8 hour ozone standard,
for LaPorte County.

Notice is hereby given under 40 CFR 51.102 that the Indiana Department of Environmental Management (IDEM) will hold a public hearing on Monday, April 10, 2006. The purpose of this hearing is to receive public comment on the Draft Redesignation Petition and Maintenance Plan in association with the 8 hour ozone standard, for LaPorte County. The meeting will convene at 6:00 p.m. (local time) in the LaPorte County Library, 904 Indiana Avenue, LaPorte, Indiana. All interested persons are invited and will be given opportunity to express their views concerning the draft documents.

This Redesignation Petition and Maintenance Plan is being drafted and submitted consistent with United States Environmental Protection Agency (USEPA) guidance.

Copies of the draft documents will available on or before March 10, 2006 to any person upon request and at the following locations:

- Indiana Department of Environmental Management, Office of Air Quality, Indiana Government Center North, 100 North Senate, Room N1003, Indianapolis, Indiana.
- LaPorte County Public Library, 904 Indiana Avenue, LaPorte, Indiana.
- La Crosse Public Library, 16 East Main Street, P.O. Box 300, La Crosse, Indiana.
- Northwest Regional Office, 8315 Virginia Street, Suite 1, Merrillville, Indiana

Oral statements will be heard, but for the accuracy of the record, statements should be submitted in writing. Written statements may be submitted to the attendant designated to receive written comments at the public hearing.

IDEM will also accept written comments through April 17, 2006. Mailed comments should be addressed to:

LaPorte County Redesignation Petition and Maintenance Plan
Kathryn Watson, Chief
Air Programs Branch, Office of Air Quality – Mail Code 61-50
100 North Senate Avenue
Indiana Department of Environmental Management
Indianapolis, IN 46206-2251

A transcript of the hearing and all written submissions provided at the public hearing shall be open to public inspection at IDEM and copies may be made available to any person upon payment of reproduction costs. Any person heard or represented at the hearing or requesting notice shall be given written notice of actions resulting from the hearing.

For additional information contact Mr. Gale Ferris, at the Indiana Department of Environmental Management, Office of Air Quality, Room 1001, Indiana Government Center North, 100 North Senate Avenue, Indianapolis or call (317) 234-3653 or (800) 451-6027 ext. 4-3653 (in Indiana).

Kathryn Watson, Chief
Air Programs Branch
Office of Air Quality

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Individuals requiring reasonable accommodations for participation in this hearing should contact the IDEM Americans with Disabilities Act (ADA) coordinator at:

Attn: ADA Coordinator
Indiana Department of Environmental Management – Mail Code 50-10
100 North Senate Avenue
Indianapolis, IN 46204-2251

Or call (317) 233-1785 (voice) or (317) 232-6565 (TDD). Please provide a minimum of 72 hours notification.

APPENDIX E

Mobile Input/Output and Calculation Files, LaPorte County, Indiana

A - 11.0 Generic Files (used for all analysis years)

1.1 Vehicle Age Distribution

iregdata.d

```
REG DIST
* County Group 1
* Lake and Porter Counties
* LDV
 1 0.0489 0.0651 0.0662 0.0683 0.0753 0.0684 0.0628 0.0632 0.0598 0.0646
   0.0584 0.0508 0.0482 0.0391 0.0369 0.0298 0.0251 0.0148 0.0137 0.0089
   0.0080 0.0036 0.0024 0.0017 0.0160
* LDT1
 2 0.0501 0.0668 0.0679 0.0396 0.0324 0.0282 0.0337 0.0312 0.0583 0.0602
   0.0823 0.0600 0.0462 0.0594 0.0574 0.0559 0.0444 0.0367 0.0295 0.0192
   0.0123 0.0061 0.0062 0.0051 0.0109
* LDT2
 3 0.0694 0.0925 0.0940 0.0869 0.0954 0.0841 0.0889 0.0759 0.0502 0.0512
   0.0460 0.0414 0.0317 0.0234 0.0166 0.0131 0.0155 0.0044 0.0039 0.0032
   0.0036 0.0020 0.0013 0.0009 0.0045
* LDT3
 4 0.0579 0.0770 0.0782 0.0693 0.0766 0.0850 0.0547 0.0582 0.0532 0.0664
   0.0582 0.0410 0.0340 0.0255 0.0274 0.0275 0.0238 0.0161 0.0132 0.0111
   0.0081 0.0047 0.0036 0.0020 0.0273
* LDT4
 5 0.0611 0.0815 0.0827 0.0961 0.1056 0.1126 0.0951 0.0795 0.0623 0.0510
   0.0480 0.0152 0.0173 0.0090 0.0111 0.0053 0.0075 0.0055 0.0075 0.0072
   0.0046 0.0026 0.0016 0.0008 0.0293
```

1.2 Inspection/Maintenance Input Files

IM2002a.d

```
I/M CUTPOINTS     :
*
* Calendar Year: 2002
*
* The four blocks of 75 values respectively apply to the MOBILE6 Types:
* LDGV, LDGT2, LDGT4 and HDGV2B.
*
* Within each of the four blocks, the first 25 values are HC cutpoints,
* the second 25 values CO cutpoints, and the third 25 values NOx cutpoints.
*
* Model Years:
* 2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990 1989 1988 1987 1986 1985 1984 1983 1982 1981 1980 1979 1978
*
* LDGV
   0.6  0.6  0.6  0.6  0.6  0.6  0.6  0.8  0.8  0.8  0.8  0.8  1.4  1.4  1.4  1.4  2.0  2.0  2.0  2.0  2.0  2.0  2.0  2.0  2.0
  10.0 10.0 10.0 10.0 10.0 10.0 10.0 15.0 15.0 15.0 15.0 15.0 20.0 20.0 20.0 20.0 30.0 30.0 30.0 30.0 60.0 60.0 60.0 60.0 60.0
   2.5  2.5  2.5  2.5  2.5  2.5  2.5  2.5  2.5  2.5  2.5  2.5  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0
```

```
*
* LDGT2
   0.8  0.8  0.8  0.8  0.8  0.8  0.8  1.6  1.6  1.6  1.6  1.6  2.2  2.2  2.2  2.2  3.2  3.2  3.2  5.0  5.0  5.0  5.0  5.0  5.0
  20.0 20.0 20.0 20.0 20.0 20.0 20.0 40.0 40.0 40.0 40.0 40.0 55.0 55.0 55.0 55.0 70.0 70.0 70.0 80.0 80.0 80.0 80.0 80.0 80.0
   3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.5  3.5  3.5  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0
*
* LDGT4
   0.8  0.8  0.8  0.8  0.8  0.8  1.6  1.6  1.6  1.6  1.6  1.6  2.0  2.0  2.0  2.0  3.2  3.2  3.2  5.0  5.0  5.0  5.0  5.0  5.0
  20.0 20.0 20.0 20.0 20.0 20.0 40.0 40.0 40.0 40.0 40.0 40.0 55.0 55.0 55.0 55.0 70.0 70.0 70.0 80.0 80.0 80.0 80.0 80.0 80.0
   4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  5.0  5.0  5.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0
*
* HDGV2B
   2.0  2.0  2.0  2.0  2.0  2.4  2.4  2.4  2.4  2.4  2.4  2.4  3.0  3.0  3.0  3.0  5.0  5.0  6.0  6.0  7.5  7.5  7.5  7.5  7.5
  30.0 30.0 30.0 30.0 30.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 60.0 60.0 60.0 60.0 75.0 75.0 100. 100. 100. 100. 100. 100. 100.
   6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0
```

IM2002b.d

```
I/M CUTPOINTS      :
*
* Calendar Year: 2002
*
* The four blocks of 75 values respectively apply to the MOBILE6 Types:
* LDGT1, LDGT3, LDGT4 and HDGV2B.
*
* Within each of the four blocks, the first 25 values are HC cutpoints,
* the second 25 values CO cutpoints, and the third 25 values NOx cutpoints.
*
* Model Years:
* 2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990 1989 1988 1987 1986 1985 1984 1983 1982 1981 1980 1979 1978
*
* LDGT1
   0.8  0.8  0.8  0.8  0.8  0.8  0.8  1.6  1.6  1.6  1.6  1.6  2.2  2.2  2.2  2.2  3.2  3.2  3.2  5.0  5.0  5.0  5.0  5.0  5.0
  20.0 20.0 20.0 20.0 20.0 20.0 20.0 40.0 40.0 40.0 40.0 40.0 55.0 55.0 55.0 55.0 70.0 70.0 70.0 80.0 80.0 80.0 80.0 80.0 80.0
   3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.5  3.5  3.5  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0
*
* LDGT3
   0.8  0.8  0.8  0.8  0.8  0.8  1.6  1.6  1.6  1.6  1.6  1.6  2.0  2.0  2.0  2.0  3.2  3.2  3.2  5.0  5.0  5.0  5.0  5.0  5.0
  20.0 20.0 20.0 20.0 20.0 20.0 40.0 40.0 40.0 40.0 40.0 40.0 55.0 55.0 55.0 55.0 70.0 70.0 70.0 80.0 80.0 80.0 80.0 80.0 80.0
   4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  5.0  5.0  5.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0
*
* LDGT4
   0.8  0.8  0.8  0.8  0.8  0.8  1.6  1.6  1.6  1.6  1.6  1.6  2.0  2.0  2.0  2.0  3.2  3.2  3.2  5.0  5.0  5.0  5.0  5.0  5.0
  20.0 20.0 20.0 20.0 20.0 20.0 40.0 40.0 40.0 40.0 40.0 40.0 55.0 55.0 55.0 55.0 70.0 70.0 70.0 80.0 80.0 80.0 80.0 80.0 80.0
   4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  4.5  5.0  5.0  5.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0  7.0
*
* HDGV2B
   2.0  2.0  2.0  2.0  2.0  2.4  2.4  2.4  2.4  2.4  2.4  2.4  3.0  3.0  3.0  3.0  5.0  5.0  6.0  6.0  7.5  7.5  7.5  7.5  7.5
  30.0 30.0 30.0 30.0 30.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 60.0 60.0 60.0 60.0 75.0 75.0 100. 100. 100. 100. 100. 100. 100.
   6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  6.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0  8.0
```

A - 12.0 2004 MOBILE6 Input Files

2.1 2004 MOBILE6 Command File

2004m6.in

```
MOBILE6 INPUT FILE

POLLUTANTS          : HC NOX

RUN DATA

MIN/MAX TEMPERATURE: 62.5 83.4
ABSOLUTE HUMIDITY   : 85.7
CLOUD COVER         : 0.34
FUEL RVP            : 9.0
FUEL PROGRAM        : 2 N
NO REFUELING        :
EXPAND EXHAUST      :
EXPAND EVAPORATIVE  :
ANTI-TAMP PROG      :
90 76 95 22222 21111111 1 12 095. 12111112
REG DIST            : iregdata.d

* The following describes the I/M programs within Lake/Porter Counties:
* First I/M Program
I/M PROGRAM         : 1 1997 2050 2 T/O IDLE
I/M MODEL YEARS     : 1 1976 1980
I/M VEHICLES        : 1 22222 21111111 1
I/M STRINGENCY      : 1 20.0
I/M COMPLIANCE      : 1 95.0
I/M WAIVER RATES    : 1 3.0 3.0
* Second I/M Program (Cutpoints for LDGV, LDGT2, LDGT4 and HDGV2B)
I/M PROGRAM         : 2 1997 2050 2 T/O IM240
I/M MODEL YEARS     : 2 1981 1995
I/M VEHICLES        : 2 21212 21111111 1
I/M STRINGENCY      : 2 20.0
I/M COMPLIANCE      : 2 95.0
I/M WAIVER RATES    : 2 3.0 3.0
I/M CUTPOINTS       : 2 IM2002A.d
I/M GRACE PERIOD    : 2 4
* Third I/M Program (Cutpoints for LDGT1 and LDGT3)
I/M PROGRAM         : 3 1997 2050 2 T/O IM240
I/M MODEL YEARS     : 3 1981 1995
I/M VEHICLES        : 3 12121 11111111 1
I/M STRINGENCY      : 3 20.0
I/M COMPLIANCE      : 3 95.0
I/M WAIVER RATES    : 3 3.0 3.0
I/M CUTPOINTS       : 3 IM2002B.d
I/M GRACE PERIOD    : 3 4
* Fourth I/M Program
```

```
I/M PROGRAM        : 4 1997 2050 2 T/O GC
I/M MODEL YEARS    : 4 1976 1995
I/M VEHICLES       : 4 22222 21111111 1
* Fifth I/M Program
I/M PROGRAM        : 5 2002 2050 2 T/O OBD I/M
I/M MODEL YEARS    : 5 1996 2050
I/M VEHICLES       : 5 22222 21111111 1
I/M STRINGENCY     : 5 20.0
I/M COMPLIANCE     : 5 95.0
I/M WAIVER RATES   : 5 3.0 3.0
I/M GRACE PERIOD   : 5 4
* Sixth I/M Program
I/M PROGRAM        : 6 1997 2050 2 T/O EVAP OBD & GC
I/M MODEL YEARS    : 6 1996 2050
I/M VEHICLES       : 6 22222 11111111 1

SCENARIO RECORD

CALENDAR YEAR      : 2004
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.3903  0.0673  0.2239  0.0690  0.0559  0.0608  0.0060  0.0047
0.0036  0.0134  0.0159  0.0175  0.0621  0.0030  0.0014  0.0052
VMT BY FACILITY    : 2004nvmt.d
SPEED VMT          : svmt04.d


END OF RUN
```

2.2 2004 Speed VMT Input File

svmt04.d

```
SPEED VMT
1  1   0.0000  0.0000  0.0000  0.0000  0.0136  0.1458  0.0847  0.0140  0.0609  0.0580  0.1092  0.2295  0.2121  0.0723
1  2   0.0000  0.0000  0.0000  0.0000  0.0136  0.1458  0.0847  0.0140  0.0609  0.0580  0.1092  0.2295  0.2121  0.0723
1  3   0.0000  0.0000  0.0000  0.0000  0.0136  0.1458  0.0847  0.0140  0.0609  0.0580  0.1092  0.2295  0.2121  0.0723
1  4   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  5   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  6   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  7   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  8   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  9   0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  10  0.0000  0.0000  0.0000  0.0000  0.0859  0.0451  0.0743  0.0477  0.0518  0.0830  0.1519  0.2129  0.1784  0.0689
1  11  0.0000  0.0000  0.0000  0.0000  0.0859  0.0451  0.0743  0.0477  0.0518  0.0830  0.1519  0.2129  0.1784  0.0689
1  12  0.0000  0.0000  0.0000  0.0000  0.0859  0.0451  0.0743  0.0477  0.0518  0.0830  0.1519  0.2129  0.1784  0.0689
1  13  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  14  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  15  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  16  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  17  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  18  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  19  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  20  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  21  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  22  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  23  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
1  24  0.0000  0.0000  0.0000  0.0000  0.0042  0.0000  0.0000  0.0480  0.1429  0.0441  0.0517  0.1828  0.4178  0.1085
2  1   0.0000  0.0012  0.0033  0.0155  0.0234  0.1305  0.0576  0.1911  0.2613  0.0917  0.1136  0.0214  0.0894  0.0000
2  2   0.0000  0.0012  0.0033  0.0155  0.0234  0.1305  0.0576  0.1911  0.2613  0.0917  0.1136  0.0214  0.0894  0.0000
2  3   0.0000  0.0012  0.0033  0.0155  0.0234  0.1305  0.0576  0.1911  0.2613  0.0917  0.1136  0.0214  0.0894  0.0000
2  4   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  5   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  6   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  7   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  8   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  9   0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  10  0.0000  0.0012  0.0084  0.0185  0.0322  0.1323  0.0820  0.2026  0.2275  0.0833  0.1059  0.0241  0.0820  0.0000
2  11  0.0000  0.0012  0.0084  0.0185  0.0322  0.1323  0.0820  0.2026  0.2275  0.0833  0.1059  0.0241  0.0820  0.0000
2  12  0.0000  0.0012  0.0084  0.0185  0.0322  0.1323  0.0820  0.2026  0.2275  0.0833  0.1059  0.0241  0.0820  0.0000
2  13  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  14  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  15  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  16  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  17  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  18  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  19  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  20  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  21  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  22  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  23  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
2  24  0.0000  0.0000  0.0002  0.0057  0.0064  0.1275  0.0242  0.1335  0.3357  0.0832  0.1522  0.0237  0.1077  0.0000
```

2.3 2010 MOBILE6 Command File

2010m6.in

```
MOBILE6 INPUT FILE

POLLUTANTS          : HC NOX

RUN DATA

MIN/MAX TEMPERATURE: 62.5 83.4
ABSOLUTE HUMIDITY  : 85.7
CLOUD COVER        : 0.34
FUEL RVP           : 9.0
FUEL PROGRAM       : 2 N
NO REFUELING       :
EXPAND EXHAUST     :
EXPAND EVAPORATIVE :
ANTI-TAMP PROG     :
90 76 95 22222 21111111 1 12 095. 12111112
REG DIST           : iregdata.d

* The following describes the I/M programs within Lake/Porter Counties:
* First I/M Program
I/M PROGRAM        : 1 1997 2050 2 T/O IDLE
I/M MODEL YEARS    : 1 1976 1980
I/M VEHICLES       : 1 22222 21111111 1
I/M STRINGENCY     : 1 20.0
I/M COMPLIANCE     : 1 95.0
I/M WAIVER RATES   : 1 3.0 3.0
* Second I/M Program (Cutpoints for LDGV, LDGT2, LDGT4 and HDGV2B)
I/M PROGRAM        : 2 1997 2050 2 T/O IM240
I/M MODEL YEARS    : 2 1981 1995
I/M VEHICLES       : 2 21212 21111111 1
I/M STRINGENCY     : 2 20.0
I/M COMPLIANCE     : 2 95.0
I/M WAIVER RATES   : 2 3.0 3.0
I/M CUTPOINTS      : 2 IM2002A.d
I/M GRACE PERIOD   : 2 4
* Third I/M Program (Cutpoints for LDGT1 and LDGT3)
I/M PROGRAM        : 3 1997 2050 2 T/O IM240
I/M MODEL YEARS    : 3 1981 1995
I/M VEHICLES       : 3 12121 11111111 1
I/M STRINGENCY     : 3 20.0
I/M COMPLIANCE     : 3 95.0
I/M WAIVER RATES   : 3 3.0 3.0
I/M CUTPOINTS      : 3 IM2002B.d
I/M GRACE PERIOD   : 3 4
* Fourth I/M Program
I/M PROGRAM        : 4 1997 2050 2 T/O GC
I/M MODEL YEARS    : 4 1976 1995
I/M VEHICLES       : 4 22222 21111111 1
* Fifth I/M Program
I/M PROGRAM        : 5 2002 2050 2 T/O OBD I/M
I/M MODEL YEARS    : 5 1996 2050
```

```
I/M VEHICLES       : 5 22222 21111111 1
I/M STRINGENCY     : 5 20.0
I/M COMPLIANCE     : 5 95.0
I/M WAIVER RATES   : 5 3.0 3.0
I/M GRACE PERIOD   : 5 4
* Sixth I/M Program
I/M PROGRAM        : 6 1997 2050 2 T/O EVAP OBD & GC
I/M MODEL YEARS    : 6 1996 2050
I/M VEHICLES       : 6 22222 11111111 1

SCENARIO RECORD

CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.309341 0.077772 0.258802 0.079779 0.069253 0.064306 0.006266 0.005276
0.003957 0.014345 0.016983 0.018467 0.065793 0.003298 0.001649 0.004713
VMT BY FACILITY    : 2010nvmt.d
SPEED VMT          : svmt10.d


END OF RUN
```

2.4 2010 Speed VMT Input File

svmt10.d

SPEED	VMT													
1	1	0.0000	0.0000	0.0000	0.0033	0.0186	0.0455	0.1222	0.1311	0.0656	0.1218	0.1076	0.1331	0.1803	0.0709
1	2	0.0000	0.0000	0.0000	0.0033	0.0186	0.0455	0.1222	0.1311	0.0656	0.1218	0.1076	0.1331	0.1803	0.0709
1	3	0.0000	0.0000	0.0000	0.0033	0.0186	0.0455	0.1222	0.1311	0.0656	0.1218	0.1076	0.1331	0.1803	0.0709
1	4	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	5	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	6	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	7	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	8	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	9	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	10	0.0000	0.0000	0.0000	0.0033	0.0443	0.0347	0.1878	0.0587	0.1835	0.0356	0.1321	0.0612	0.1906	0.0682
1	11	0.0000	0.0000	0.0000	0.0033	0.0443	0.0347	0.1878	0.0587	0.1835	0.0356	0.1321	0.0612	0.1906	0.0682
1	12	0.0000	0.0000	0.0000	0.0033	0.0443	0.0347	0.1878	0.0587	0.1835	0.0356	0.1321	0.0612	0.1906	0.0682
1	13	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	14	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	15	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	16	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	17	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	18	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	19	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	20	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	21	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	22	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	23	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
1	24	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0219	0.0361	0.1526	0.1458	0.1138	0.2308	0.2156	0.0802
2	1	0.0000	0.0008	0.0054	0.0100	0.0252	0.1250	0.0580	0.1902	0.2571	0.0888	0.1146	0.0339	0.0910	0.0000
2	2	0.0000	0.0008	0.0054	0.0100	0.0252	0.1250	0.0580	0.1902	0.2571	0.0888	0.1146	0.0339	0.0910	0.0000
2	3	0.0000	0.0008	0.0054	0.0100	0.0252	0.1250	0.0580	0.1902	0.2571	0.0888	0.1146	0.0339	0.0910	0.0000
2	4	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	5	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	6	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	7	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	8	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	9	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	10	0.0000	0.0017	0.0039	0.0150	0.0230	0.1305	0.0552	0.2032	0.2508	0.0776	0.1261	0.0250	0.0879	0.0000
2	11	0.0000	0.0017	0.0039	0.0150	0.0230	0.1305	0.0552	0.2032	0.2508	0.0776	0.1261	0.0250	0.0879	0.0000
2	12	0.0000	0.0017	0.0039	0.0150	0.0230	0.1305	0.0552	0.2032	0.2508	0.0776	0.1261	0.0250	0.0879	0.0000
2	13	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	14	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	15	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	16	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	17	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000
2	18	0.0000	0.0000	0.0000	0.0029	0.0061	0.1250	0.0127	0.1174	0.3554	0.0661	0.1629	0.0395	0.1120	0.0000

```
2  19  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
2  20  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
2  21  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
2  22  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
2  23  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
2  24  0.0000  0.0000  0.0000  0.0029  0.0061  0.1250  0.0127  0.1174  0.3554  0.0661  0.1629  0.0395  0.1120  0.0000
```

2.5 2020 MOBILE6 Command File

2020m6.in

```
MOBILE6 INPUT FILE

POLLUTANTS          : HC NOX

RUN DATA

MIN/MAX TEMPERATURE: 62.5 83.4
ABSOLUTE HUMIDITY  : 85.7
CLOUD COVER        : 0.34
FUEL RVP           : 9.0
FUEL PROGRAM       : 2 N
NO REFUELING       :
EXPAND EXHAUST     :
EXPAND EVAPORATIVE :
ANTI-TAMP PROG     :
90 76 95 22222 21111111 1 12 095. 12111112
REG DIST           : iregdata.d

* The following describes the I/M programs within Lake/Porter Counties:
* First I/M Program
I/M PROGRAM        : 1 1997 2050 2 T/O IDLE
I/M MODEL YEARS    : 1 1976 1980
I/M VEHICLES       : 1 22222 21111111 1
I/M STRINGENCY     : 1 20.0
I/M COMPLIANCE     : 1 95.0
I/M WAIVER RATES   : 1 3.0 3.0
* Second I/M Program (Cutpoints for LDGV, LDGT2, LDGT4 and HDGV2B)
I/M PROGRAM        : 2 1997 2050 2 T/O IM240
I/M MODEL YEARS    : 2 1981 1995
I/M VEHICLES       : 2 21212 21111111 1
I/M STRINGENCY     : 2 20.0
I/M COMPLIANCE     : 2 95.0
I/M WAIVER RATES   : 2 3.0 3.0
I/M CUTPOINTS      : 2 IM2002A.d
I/M GRACE PERIOD   : 2 4
* Third I/M Program (Cutpoints for LDGT1 and LDGT3)
I/M PROGRAM        : 3 1997 2050 2 T/O IM240
I/M MODEL YEARS    : 3 1981 1995
I/M VEHICLES       : 3 12121 11111111 1
I/M STRINGENCY     : 3 20.0
I/M COMPLIANCE     : 3 95.0
I/M WAIVER RATES   : 3 3.0 3.0
I/M CUTPOINTS      : 3 IM2002B.d
I/M GRACE PERIOD   : 3 4
* Fourth I/M Program
```

```
I/M PROGRAM         : 4 1997 2050 2 T/O GC
I/M MODEL YEARS     : 4 1976 1995
I/M VEHICLES        : 4 22222 21111111 1
* Fifth I/M Program
I/M PROGRAM         : 5 2002 2050 2 T/O OBD I/M
I/M MODEL YEARS     : 5 1996 2050
I/M VEHICLES        : 5 22222 21111111 1
I/M STRINGENCY      : 5 20.0
I/M COMPLIANCE      : 5 95.0
I/M WAIVER RATES    : 5 3.0 3.0
I/M GRACE PERIOD    : 5 4
* Sixth I/M Program
I/M PROGRAM         : 6 1997 2050 2 T/O EVAP OBD & GC
I/M MODEL YEARS     : 6 1996 2050
I/M VEHICLES        : 6 22222 11111111 1

SCENARIO RECORD

CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
VMT FRACTIONS       :
0.2443  0.0890  0.2960  0.0913  0.0769  0.0634  0.0062  0.0053
0.0040  0.0143  0.0168  0.0183  0.0649  0.0032  0.0016  0.0045
VMT BY FACILITY     : 2020nvmt.d
SPEED VMT           : svmt20.d


END OF RUN
```

2.6 2020 Speed VMT Input File

svmt20.d

```
SPEED VMT
1   1   0.0000  0.0000  0.0000  0.0033  0.0451  0.1010  0.1587  0.1374  0.0617  0.0824  0.0849  0.1255  0.1220  0.0780
1   2   0.0000  0.0000  0.0000  0.0033  0.0451  0.1010  0.1587  0.1374  0.0617  0.0824  0.0849  0.1255  0.1220  0.0780
1   3   0.0000  0.0000  0.0000  0.0033  0.0451  0.1010  0.1587  0.1374  0.0617  0.0824  0.0849  0.1255  0.1220  0.0780
1   4   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   5   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   6   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   7   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   8   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   9   0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   10  0.0000  0.0000  0.0000  0.0194  0.0529  0.1681  0.1678  0.1023  0.0704  0.0593  0.0406  0.0927  0.1521  0.0744
1   11  0.0000  0.0000  0.0000  0.0194  0.0529  0.1681  0.1678  0.1023  0.0704  0.0593  0.0406  0.0927  0.1521  0.0744
1   12  0.0000  0.0000  0.0000  0.0194  0.0529  0.1681  0.1678  0.1023  0.0704  0.0593  0.0406  0.0927  0.1521  0.0744
1   13  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   14  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   15  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   16  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   17  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   18  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   19  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   20  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   21  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   22  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   23  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
1   24  0.0000  0.0000  0.0000  0.0036  0.0000  0.0000  0.0318  0.0767  0.2225  0.1199  0.1019  0.1368  0.2208  0.0860
2   1   0.0000  0.0007  0.0041  0.0105  0.0336  0.1268  0.0724  0.1896  0.2455  0.0726  0.1264  0.0341  0.0837  0.0000
2   2   0.0000  0.0007  0.0041  0.0105  0.0336  0.1268  0.0724  0.1896  0.2455  0.0726  0.1264  0.0341  0.0837  0.0000
2   3   0.0000  0.0007  0.0041  0.0105  0.0336  0.1268  0.0724  0.1896  0.2455  0.0726  0.1264  0.0341  0.0837  0.0000
2   4   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   5   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   6   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   7   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   8   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
```

```
2   9   0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   10  0.0000  0.0013  0.0059  0.0131  0.0339  0.1419  0.0888  0.2119  0.2085  0.0735  0.1167  0.0354  0.0691  0.0000
2   11  0.0000  0.0013  0.0059  0.0131  0.0339  0.1419  0.0888  0.2119  0.2085  0.0735  0.1167  0.0354  0.0691  0.0000
2   12  0.0000  0.0013  0.0059  0.0131  0.0339  0.1419  0.0888  0.2119  0.2085  0.0735  0.1167  0.0354  0.0691  0.0000
2   13  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   14  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   15  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   16  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   17  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   18  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   19  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   20  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   21  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   22  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   23  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
2   24  0.0000  0.0000  0.0000  0.0051  0.0075  0.1318  0.0233  0.1500  0.3200  0.0693  0.1482  0.0408  0.1041  0.0000
```

2.7 2020 VMT by Facility Input File

Each of the analysis years has one of these files. They are slightly different from each other but virtually identical. We refrain from printing all of them due to the size.

2020nvmt.d

```
VMT BY FACILITY
1   0.367000941   0.502699716   0.110056636   0.020242707
    0.367000941   0.502699716   0.110056636   0.020242707
    0.367000941   0.502699716   0.110056636   0.020242707
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.334396888   0.522356872   0.123752733   0.019493507
    0.334396888   0.522356872   0.123752733   0.019493507
    0.334396888   0.522356872   0.123752733   0.019493507
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
2   0.367000941   0.502699716   0.110056636   0.020242707
    0.367000941   0.502699716   0.110056636   0.020242707
    0.367000941   0.502699716   0.110056636   0.020242707
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.334396888   0.522356872   0.123752733   0.019493507
    0.334396888   0.522356872   0.123752733   0.019493507
    0.334396888   0.522356872   0.123752733   0.019493507
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
    0.346313386   0.514333870   0.120290405   0.019062340
```

3	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
4	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
5	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
6	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
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7	0.719392251	0.227080053	0.034891129	0.018636567
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8	0.719392251	0.227080053	0.034891129	0.018636567
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12	0.719392251	0.227080053	0.034891129	0.018636567
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14	0.367000941	0.502699716	0.110056636	0.020242707
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	0.346313386	0.514333870	0.120290405	0.019062340
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	0.334396888	0.522356872	0.123752733	0.019493507
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16	0.719392251	0.227080053	0.034891129	0.018636567
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18	0.719392251	0.227080053	0.034891129	0.018636567
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19	0.719392251	0.227080053	0.034891129	0.018636567
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	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
20	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
21	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546

	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
22	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
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	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
23	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
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	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
24	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.367000941	0.502699716	0.110056636	0.020242707
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.334396888	0.522356872	0.123752733	0.019493507
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340
	0.346313386	0.514333870	0.120290405	0.019062340

25	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
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	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
26	0.567944842	0.379389406	0.037844255	0.014821497
	0.567944842	0.379389406	0.037844255	0.014821497
	0.567944842	0.379389406	0.037844255	0.014821497
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.586361287	0.360333631	0.037724077	0.015581005
	0.586361287	0.360333631	0.037724077	0.015581005
	0.586361287	0.360333631	0.037724077	0.015581005
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
	0.549043914	0.401438740	0.033002887	0.016514459
27	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.719392251	0.227080053	0.034891129	0.018636567
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.713063621	0.232791203	0.035306649	0.018838527
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
	0.680561473	0.266915828	0.032148153	0.020374546
28	0.504460218	0.395187191	0.080736400	0.019616191
	0.504460218	0.395187191	0.080736400	0.019616191
	0.504460218	0.395187191	0.080736400	0.019616191
	0.513981887	0.390221829	0.076075704	0.019720580
	0.513981887	0.390221829	0.076075704	0.019720580
	0.513981887	0.390221829	0.076075704	0.019720580
	0.513981887	0.390221829	0.076075704	0.019720580
	0.513981887	0.390221829	0.076075704	0.019720580

```
   0.513981887   0.390221829   0.076075704   0.019720580
   0.475006870   0.414832709   0.090910127   0.019250294
   0.475006870   0.414832709   0.090910127   0.019250294
   0.475006870   0.414832709   0.090910127   0.019250294
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
   0.513981887   0.390221829   0.076075704   0.019720580
```

A - 13.0 MOBILE6 Emission Factor Output Files

A box has been placed around the composite emission factors used in calculating the total emissions so that it is easy to find. These numbers are multiplied by the total VMT/day for the daily emissions total for Lake & Porter counties.

3.1 2004

2004m6.txt

```
************************************************************************
* MOBILE6.2.01 (31-Oct-2002)                                           *
* Input file: 2004M6.IN (file 1, run 1).                               *
************************************************************************
  M617 Comment:
               User supplied alternate AC input: Cloud Cover Fraction set to 0.34.
  M616 Comment:
               User has supplied post-1999 sulfur levels.
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: IREGDATA.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002A.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002B.D

* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
*

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly Roadway VMT distribution from the following external
* data file: 2004NVMT.D

  Reading User Supplied ROADWAY VMT Factors
```

```
* Reading Hourly, Roadway, and Speed VMT dist. from the following external
* data file: SVMT04.D
*** I/M credits for Tech1&2 vehicles were read from the following external
    data file: TECH12.D
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                  Calendar Year:  2004
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  62.5 (F)
             Maximum Temperature:  83.4 (F)
               Absolute Humidity:   86. grains/lb
             Fuel Sulfur Content:  120. ppm

             Exhaust I/M Program:  Yes
                Evap I/M Program:  Yes
                     ATP Program:  Yes
               Reformulated Gas:  Yes
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3898	0.2912	0.1231		0.0564	0.0005	0.0018	0.1320	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.946	0.803	0.923	0.839	1.001	0.579	0.585	0.464	1.96	0.845
Composite NOX :	0.865	1.000	1.350	1.104	4.919	1.488	1.394	14.147	1.22	2.949
Exhaust emissions (g/mi):										
VOC Start:	0.256	0.238	0.315	0.260		0.257	0.193		0.398	
VOC Running:	0.202	0.232	0.312	0.256		0.323	0.392		1.130	
VOC Total Exhaust:	0.459	0.470	0.627	0.517	0.446	0.579	0.585	0.464	1.53	0.488
NOx Start:	0.170	0.195	0.222	0.203		0.078	0.040		0.375	
NOx Running:	0.695	0.805	1.128	0.901		1.410	1.354		0.850	
NOx Total Exhaust:	0.865	1.000	1.350	1.104	4.919	1.488	1.394	14.147	1.22	2.949
Non-Exhaust Emissions (g/mi):										
Hot Soak Loss:	0.166	0.109	0.091	0.103	0.178	0.000	0.000	0.000	0.081	0.118
Diurnal Loss:	0.022	0.015	0.015	0.015	0.039	0.000	0.000	0.000	0.005	0.017
Resting Loss:	0.119	0.078	0.078	0.078	0.200	0.000	0.000	0.000	0.350	0.092
Running Loss:	0.173	0.121	0.102	0.116	0.128	0.000	0.000	0.000	0.000	0.123
Crankcase Loss:	0.008	0.010	0.010	0.010	0.010	0.000	0.000	0.000	0.000	0.008
Refueling Loss:	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Non-Exhaust:	0.487	0.333	0.296	0.329	0.555	0.000	0.000	0.000	0.437	0.357

3.2 2010

2010m6.txt

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: 2010M6.IN (file 1, run 1).                                    *
*****************************************************************************
  M617 Comment:
               User supplied alternate AC input: Cloud Cover Fraction set to 0.34.
  M616 Comment:
               User has supplied post-1999 sulfur levels.
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: IREGDATA.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002A.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002B.D

* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
*

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly Roadway VMT distribution from the following external
* data file: 2010NVMT.D

  Reading User Supplied ROADWAY VMT Factors

* Reading Hourly, Roadway, and Speed VMT dist. from the following external
* data file: SVMT10.D
*** I/M credits for Tech1&2 vehicles were read from the following external
    data file: TECH12.D
  M 48 Warning:
               there are no sales for vehicle class HDGV8b

                     Calendar Year:  2010
                             Month:  July
                          Altitude:  Low
               Minimum Temperature:  62.5 (F)
               Maximum Temperature:  83.4 (F)
                 Absolute Humidity:   86. grains/lb
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  Yes
                  Evap I/M Program:  Yes
                       ATP Program:  Yes
                 Reformulated Gas:  Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
  All Veh
               GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------
   ------
   VMT Distribution:    0.3091    0.3366    0.1469              0.0590    0.0003    0.0022    0.1414    0.0047
   1.0000
  ---------------------------------------------------------------------------------------------------------------
---------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.548     0.449     0.538     0.476     0.567    0.184     0.318     0.316      1.90
    0.487
     Composite NOX :      0.451     0.523     0.809     0.610     2.371    0.446     0.633     7.377      1.22
    1.624
  ---------------------------------------------------------------------------------------------------------------
---------
```

```
Exhaust emissions (g/mi):
        VOC   Start:     0.116     0.116     0.159     0.129               0.068     0.103                0.398
       VOC   Running:     0.102     0.111     0.165     0.127               0.116     0.214                1.101
  VOC Total Exhaust:     0.218     0.227     0.324     0.257     0.168     0.184     0.318     0.316      1.50
    0.254

          NOx Start:     0.085     0.102     0.137     0.112               0.018     0.020                0.375
        NOx Running:     0.366     0.422     0.673     0.498               0.427     0.614                0.843
  NOx Total Exhaust:     0.451     0.523     0.809     0.610     2.371     0.446     0.633     7.377      1.22
    1.624
  ------------------------------------------------------------------------------------------------------------
---------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.131     0.086     0.079     0.084     0.145     0.000     0.000     0.000      0.080
    0.090
       Diurnal Loss:     0.014     0.009     0.010     0.010     0.024     0.000     0.000     0.000      0.002
    0.010
       Resting Loss:     0.080     0.051     0.055     0.052     0.136     0.000     0.000     0.000      0.323
    0.060
       Running Loss:     0.096     0.065     0.058     0.063     0.084     0.000     0.000     0.000      0.000
    0.065
     Crankcase Loss:     0.008     0.010     0.010     0.010     0.010     0.000     0.000     0.000      0.000
    0.008
     Refueling Loss:     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      0.000
    0.000
  Total Non-Exhaust:     0.330     0.221     0.213     0.224     0.399     0.000     0.000     0.000      0.405
    0.233
  ------------------------------------------------------------------------------------------------------------
---------
```

3.3 2020

2020m6.txt

```
****************************************************************************
* MOBILE6.2.01 (31-Oct-2002)                                               *
* Input file: 2020M6.IN (file 1, run 1).                                   *
****************************************************************************
  M617 Comment:
               User supplied alternate AC input: Cloud Cover Fraction set to 0.34.
  M616 Comment:
               User has supplied post-1999 sulfur levels.
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: IREGDATA.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002A.D

* Reading non-default I/M CUTPOINTS from the following external
* data file: IM2002B.D

* # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
*

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly Roadway VMT distribution from the following external
* data file: 2020NVMT.D

  Reading User Supplied ROADWAY VMT Factors

* Reading Hourly, Roadway, and Speed VMT dist. from the following external
* data file: SVMT20.D
*** I/M credits for Tech1&2 vehicles were read from the following external
    data file: TECH12.D
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
```

```
 M 48 Warning:
             there are no sales for vehicle class LDDT12

                  Calendar Year:  2020
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  62.5 (F)
             Maximum Temperature:  83.4 (F)
               Absolute Humidity:   86. grains/lb
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  Yes
                Evap I/M Program:  Yes
                     ATP Program:  Yes
                Reformulated Gas:  Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
 All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------
   ------
   VMT Distribution:    0.2441    0.3850    0.1657              0.0581    0.0002    0.0024    0.1399    0.0045
   1.0000
  ---------------------------------------------------------------------------------------------------------------
---------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.233     0.218     0.278     0.236     0.266    0.064     0.126     0.223      1.92
    0.243
     Composite NOX :      0.145     0.190     0.313     0.227     0.614    0.064     0.172     1.737      1.20
    0.445
  ---------------------------------------------------------------------------------------------------------------
---------
Exhaust emissions (g/mi):
        VOC   Start:     0.049     0.059     0.079     0.065              0.022     0.042                0.398
      VOC   Running:     0.047     0.062     0.084     0.069              0.042     0.084                1.121
  VOC Total Exhaust:     0.096     0.121     0.163     0.134     0.075    0.064     0.126     0.223      1.52
    0.140

          NOx Start:     0.027     0.034     0.054     0.040              0.003     0.006                0.375
        NOx Running:     0.119     0.156     0.260     0.187              0.061     0.166                0.827
  NOx Total Exhaust:     0.145     0.190     0.313     0.227     0.614    0.064     0.172     1.737      1.20
    0.445
  ---------------------------------------------------------------------------------------------------------------
---------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.050     0.033     0.042     0.036     0.077    0.000     0.000     0.000      0.080
    0.037
       Diurnal Loss:     0.005     0.003     0.005     0.004     0.011    0.000     0.000     0.000      0.002
    0.004
       Resting Loss:     0.022     0.013     0.021     0.016     0.045    0.000     0.000     0.000      0.323
    0.018
       Running Loss:     0.051     0.038     0.037     0.038     0.048    0.000     0.000     0.000      0.000
    0.036
     Crankcase Loss:     0.008     0.010     0.010     0.010     0.010    0.000     0.000     0.000      0.000
    0.008
     Refueling Loss:     0.000     0.000     0.000     0.000     0.000    0.000     0.000     0.000      0.000
    0.000
  Total Non-Exhaust:     0.137     0.097     0.115     0.103     0.191    0.000     0.000     0.000      0.405
    0.103
  ---------------------------------------------------------------------------------------------------------------
---------
```

Appendix F
Summary of and Response to Comments Received

Legend

- Comment
- ○ IDEM's Response

Constance M. Clay, Save the Dunes Council

- The Warning Level Response trigger level of 0.089 ppm is set too high; since the health based 8-hour ozone national ambient air quality standard is 0.08 ppm.

- ○ IDEM has proposed the use of either a one-year 4th high of 0.089 ppm or a two-year average 4th high of 0.085 ppm as a trigger to take action in advance of an actual violation of the standard. If either level is reached, it would proactively trigger a warning level response before the health based standard is exceeded. This is no less stringent than trigger levels previously used by IDEM or other states.

  A warning level response consists of a study to determine whether the ozone values indicate a trend toward higher concentrations. A study shall evaluate whether the trend, if any, is likely to continue and, if so, whether control measures are necessary to reverse the trend. A Warning Level Response will be completed as expeditiously as possible, but in no event later than twelve (12) months from the conclusion of the most recent ozone season (September 30).

  In order to be in violation of the 8-hour ozone standard, a 3-year average (of the annual 4th highest concentration) of 0.085 ppm or greater is required (opposed to .08 parts per billion). According to U.S. EPA's methodology for determining compliance with the standard "Guidelines On Data Handling Conventions For the 8-Hour Ozone NAAQS", published in December of 1998, the U.S. EPA established parts per million (ppm) and three significant figures as the basis for computation of 8-hour ozone concentrations. In accordance with this guidance, three significant digits are used to determine an area's design value and for conducting attainment tests. Specifically, because the third decimal digit is rounded, 0.084 ppm is the largest concentration that is less than or equal to the standard of 0.08 ppm. Since a warning level response trigger is based on one to two years of monitoring data, it should not be compared to the actual standard of 0.085 ppm that is based on 3 years of data. Nevertheless, since IDEM proposes a two-tier response trigger that includes a two year average of 0.085 ppm, it could be deemed more stringent than necessary for a warning level response.

- Other 8-hr. ozone nonattainment areas in the U.S. have selected lower Warning Level Response trigger levels and we urge IDEM to be more protective of LaPorte County air by selecting a much lower trigger level in consultation with the citizens of LaPorte County (especially those populations most at risk from unhealthy air).

- The use of a two-tier warning level response trigger (1-year fourth high of 0.089 ppm and a 2-year fourth high of 0.085 ppm) does in fact enable a warning level response prior to the health based standard being violated. Also, the use of the two-tier approach is no less stringent than the one-tier approach (1-year fourth high of 0.088 ppm) used previously by IDEM. For example, a warning level trigger based on a 1-year fourth high of 0.088 ppm would not be triggered by back-to-back fourth highs of 0.085 ppm to 0.087 ppm, even though the two-year average fourth high would be above 0.085 ppm. In this instance, the area would be well on course to a possible violation of the standard without triggering a warning level response. The two-tier approach better addresses this possibility.

- The Action Level Response trigger level now set at 0.085 ppm should also be lowered accordingly.

- Action level responses are designed based on the increased likelihood for action being needed. Since the two-tier warning level response will enable IDEM to proactively evaluate the need for action prior to an action level response being triggered, it is reasonable to set the action level response at the standard itself. This does not preclude action being taken prior to a violation occurring because a warning level response will precede an action level response.

- IDEM should commit to revisiting the suggested contingency measures that may have to be taken should a warning level response be triggered. This should be done in a timely fashion and certainly before the year 2020.

- The contingency measures outlined in the maintenance plan are examples only and will be revisited if a warning or action level response is triggered. Contingency measures to be considered will be selected from a comprehensive list of measures deemed appropriate and effective at the time the selection is made. The selection of measures will be based upon cost-effectiveness, emission reduction potential, economic and social considerations or other factors that IDEM deems appropriate. IDEM will solicit input from all interested and affected persons in the maintenance area prior to selecting appropriate contingency measures. In the event that the Action Level is triggered after the maintenance plan has been approved by the U.S. EPA, and is not found to be due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, IDEM will determine whether or not additional control measures are needed to assure future attainment of NAAQS for ozone. In this case, measures that can be implemented in a short time will be selected in order to be in place within eighteen (18) months from the close of the ozone season that prompted the Action Level (i.e. if an action level were triggered during the 2007 ozone season, contingency measures (if necessary) would be required to be in place by the end of March 2008).

Howard M. Smith, LaPorte County Schools

- Will increasing the use of alternative fuels such as ethanol (E-10 and E-85) and/or biodiesel have significant impact on Indiana's air quality.

- Several recent studies indicate that using E-10 as opposed to regular gasoline slightly increases VOC (+3.9%) and NO_x (+1.2%) cumulative emissions (exhaust, evaporative and permeation) and slightly decreases PM (-2.4%) and SO^2 (-10%) emissions. It should be noted as the percentage blend of ethanol increases in gasoline (i.e. above 10% up to 85%), mobile source VOC, NO_x, PM and SO^2 tailpipe emissions appear to decrease as well. IDEM has recently finalized a fact sheet that provides detailed information concerning the environmental benefits, environmental disbenefits, and cumulative effects of ethanol use in Indiana. This fact sheet will be posted on IDEM's Dieselwise website in the near future.

Recent modeling conducted by IDEM indicates that using B-20 (20% biodiesel, 80 % regular diesel) decreases VOC (-10%), PM (-15%) from mobile tailpipe emissions and slightly increases NO_x (+2%) emissions. These associated emissions benefits/disbenefits tend to increase as the percentage of biodiesel increases. IDEM has recently finalized a fact sheet that provides detailed information concerning the environmental benefits, environmental disbenefits, and cumulative effects of biodiesel use in Indiana. This fact sheet will be posted on IDEM's Dieselwise website in the near future.

Based on these studies it appears the environmental effects of mobile source ethanol and biodiesel use in Indiana will have a negligible effect on Indiana's overall air quality. Modeling that was conducted by the U.S. EPA to support the NO_x SIP Call clearly indicates that LaPorte County is adversely and significantly affected by transported air pollutants. Modeling that was recently conducted by IDEM clearly demonstrates that local emission reductions, regardless of volume, have little to no impact on ozone concentrations within LaPorte County or neighboring downwind areas. As a result, mobile source ethanol and biodiesel use in LaPorte County will have little or no effect on the county's air quality.

Mark Strimbu, NiSource

- On Page 2 of the draft redesignation request, the paragraph just above Section 2.2 states that the subsections below refer in greater detail to the requirements listed in Section 1.0. These subsections are actually located in Section 3.0. Page 2 should be revised to clarify this.

  - IDEM has deleted this language since it is not necessary.

- On Page 26 of the draft redesignation request, the paragraph above Table 7.3 states that the average temperature of 90^{o} F and higher days for the LaPorte County area is 10.2. This number disagrees with what's in Table 7.3 (11.2 days).

  - IDEM has addressed this within the document accordingly.

- Section 8.2, *Commitment for Contingency Measures*, should state that the ozone monitoring data has been quality QA/QC and provide information as to when the ozone data will be available.

  - The ozone monitoring data that will by used by IDEM to determine whether a Warning Level Response or Action Level has been prompted will be QA/QC and available by no later than November 15^{th} annually.

The Honorable Leigh E. Morris, Mayor, City of LaPorte

- The City of LaPorte believes that Indiana's request to redesignate LaPorte County from nonattainment to attainment of the 8-hour ozone standard is a very positive step for LaPorte County.

  - No response necessary.

- The City of LaPorte appreciates the manner in which IDEM has worked with the citizens of LaPorte County in achieving attainment of the 8-hr. ozone standard.

  - No response necessary.

John G. Regetz, Michigan City Economic Development Corporation

- The Michigan City Economic Development Corporation extends its support of Indiana's request to redesignate LaPorte County from nonattainment to attainment of the 8-hour ozone standard.

  ○ No response necessary.

- Implementation of the NO_x SIP Call has been a success for LaPorte.

  ○ No response necessary.

- LaPorte County has recorded three years of complete quality assured monitoring data for the years 2003 – 2005 that demonstrate attainment with the 8-hr. ozone standard.

  ○ No response necessary.

- Permanent and enforceable reductions in emission levels for NO_x and VOC has been achieved in the nonattainment area.

  ○ No response necessary.

- As federal, state and local agencies strive to balance the many needs of our community, we should retain effective models for improving its air quality.

  ○ IDEM appreciates the comment and agrees fully.

- The Michigan City Economic Development Corporation recommends retaining the current 8-hr. ozone standard of 0.08 ppm.

  ○ No response necessary.